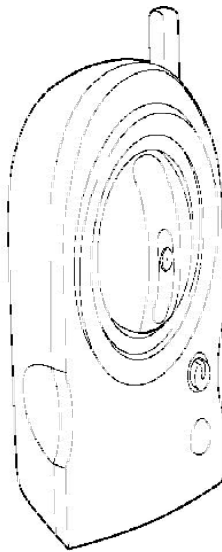


ORDER NO. KMS0504058CE

Service Manual

**Network Camera
BL-C30CE / BL-C30E
(for Europe)**



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IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.

Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.

When this mark does appear, please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:

In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin, (Sn), Silver, (Ag), and Copper, (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB.

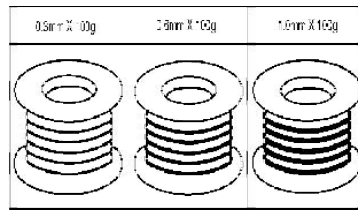
For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

- PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).

1.1. SUGGESTED PbF SOLDER

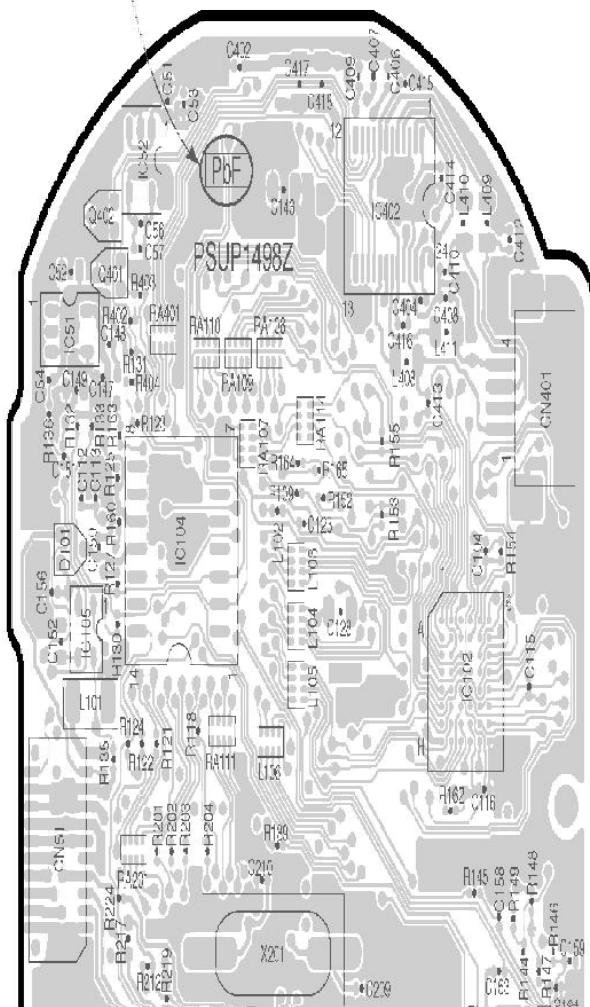
There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper, (Sn+Ag+Cu), you can also use Tin and Copper, (Sn+Cu), or Tin, Zinc, and Bismuth, (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials. The following lead free (PbF) solder wire gauge are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.



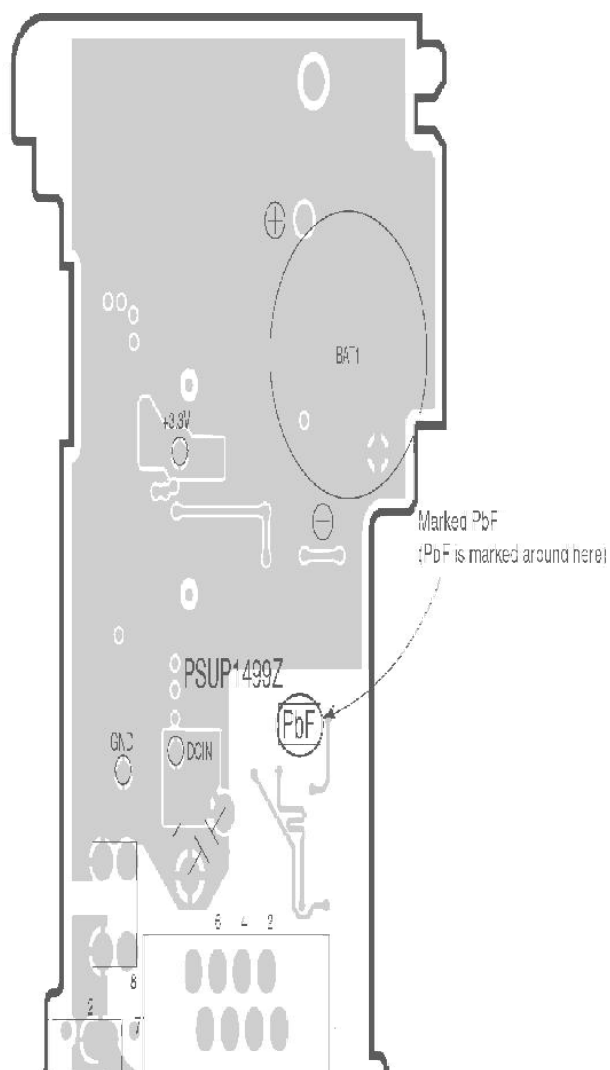
1.2. HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED

MAIN BOARD

Marked PbF (PbF is marked around here)

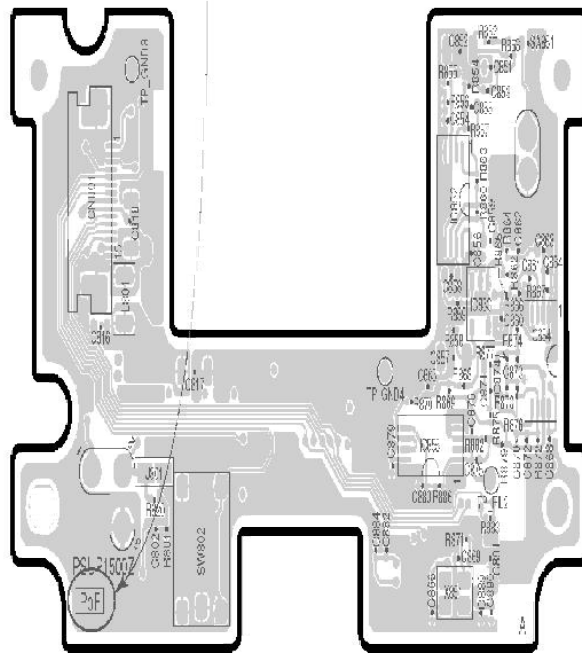


I/O BOARD



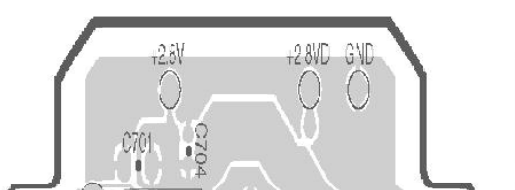
SUB BOARD

Marked PbF (PbF is marked around here)



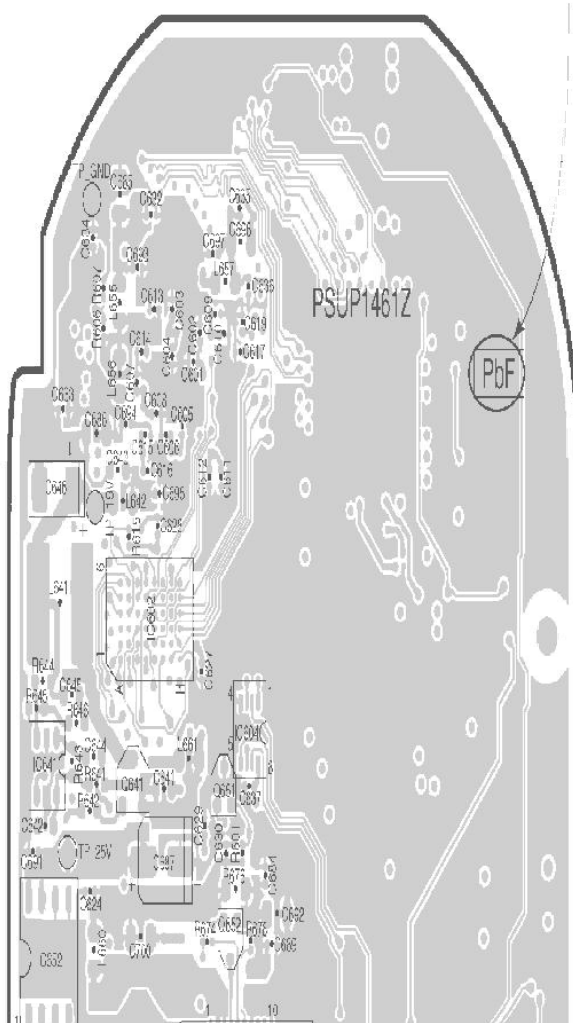
LENS BOARD

Marked PbF (PbF is marked around here)



RF BOARD

Marked PbF (PbF is marked around here)



2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When replacing, the following precautions will help to prevent recurring malfunctions.

1. Cover the plastic parts with aluminum foil.
2. Ground the soldering irons.

3. Use a conductive mat on the work-table.
4. Do not grasp IC or LSI pins with bare fingers.

3. CAUTION

3.1. SAFETY PRECAUTIONS

1. Before servicing, unplug the power cord to prevent an electrical shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, make the following insulation resistance test to prevent a shock hazard.

3 VORSICHT

3.1. SICHERHEITSHINWEISE

1. Vor Reparatur oder Wartung das Netzteil vom Netz abkoppeln.
2. Nur Originalteile verwenden. Ersatzteile vom Hersteller anfordern.
3. Das Gehäuse des Netzteils prüfen und bei erkennbarer Abnutzung oder Beschädigung ersetzen.
4. Nach der Reparatur das Netzteil wieder an das Netz anschließen.
5. Nach der Reparatur das Netzteil an das Netz anschließen und die Funktion des Netzteils überprüfen.

3.2. BATTERY CAUTION

Danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's Instructions.

The lithium battery is a critical component (type No. CR-1632/1HF). Please observe for the proper polarity and the exact location when replacing it and soldering the replacement lithium battery in.

3.3. TRADEMARKS

- Adobe and Acrobat are either registered trademarks or trademarks of

Adobe Systems Incorporated in the United States and/or other countries.

- Ethernet is either a registered trademark or a trademark of Xerox Corporation in the United States and/or other countries.**
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- Screen shots reprinted with permission from Microsoft Corporation.**
- All other trademarks identified herein are the property of their respective owners.**

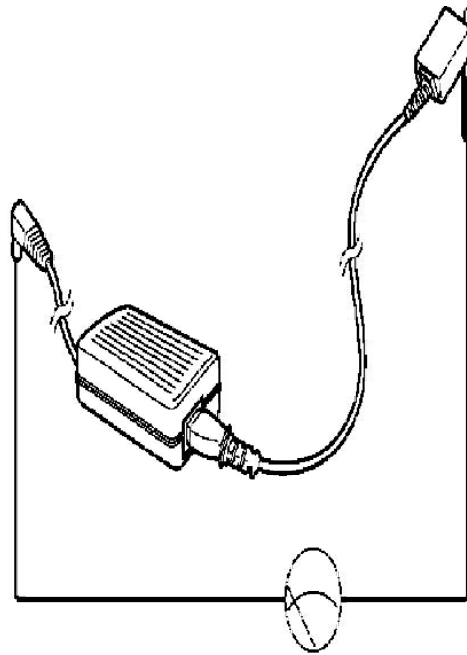
3.4. INSULATION RESISTANCE TEST

- 1. Unplug the AC power cord and short the two prongs of the plug with a jumper wire.**
- 2. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw threads, etc.**

Note:

Some exposed parts may be isolated from the chassis by design. These will read infinity.

- 3. If the measurement is outside the specified limits, there is a possibility of shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.**



Ohm meter

Resistance = more than $5M\Omega$ (at DC 500 V)

3.4. ISOLATIONSWIDERSTANDSPRÜFUNG

1. Das Netzkabel abziehen und die beiden Stifte des Steckers mit einer Drahtbürste verbinden
2. Mittels eines Ohmmeters den Widerstand zwischen dem überdruckten Netzstecker und allen freiliegenden Metallteilen des Gehäuses wie Schrauben, Gewinde, usw. messen

Hinweis:

Einige der freiliegenden Teile können keine direkte Verbindung zum Gehäuse aufweisen. Diese sollten dann isoliert werden.
 2. Nach der Messung ist der Widerstand des Gehäuses gegen die Erde zu messen. Dieser sollte mind. $5M\Omega$ betragen. Bei einem niedrigeren Widerstand ist das Gehäuse zu isolieren und wieder geprüft werden.



3.5. POWER CAUTION

The power socket wall outlet should be located near this equipment and be easily accessible.

3.6. PRECAUTIONS FOR USERS IN THE UNITED KINGDOM

FOR YOUR SAFETY, PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience. A 3 amp fuse is fitted in this plug. Should the fuse need to be replaced, please ensure that the replacement

fuse has a rating of 3 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover, you must ensure that it is refitted when the fuse is replaced. If you lose the fuse cover, the plug must not be used until a replacement cover is obtained. A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted, please observe the wiring code as shown below. If in any doubt, please consult a qualified electrician.

IMPORTANT: THIS APPLIANCE MUST BE EARTHED.

How to replace the fuse: The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wire in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured **BLUE** must be connected to the terminal in the plug which is marked with the letter **N** or coloured **BLACK**.

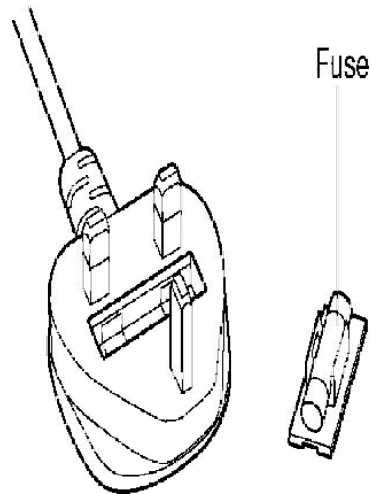
The wire which is coloured **BROWN** must be connected to the terminal in the plug which is marked with the letter **L** or coloured **RED**.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter **E** or the Earth symbol .

How to Replace the Fuse

1. Insert the flathead screwdriver into the groove either end of the fuse carrier.

2. Detach the fuse carrier and change the fuse.



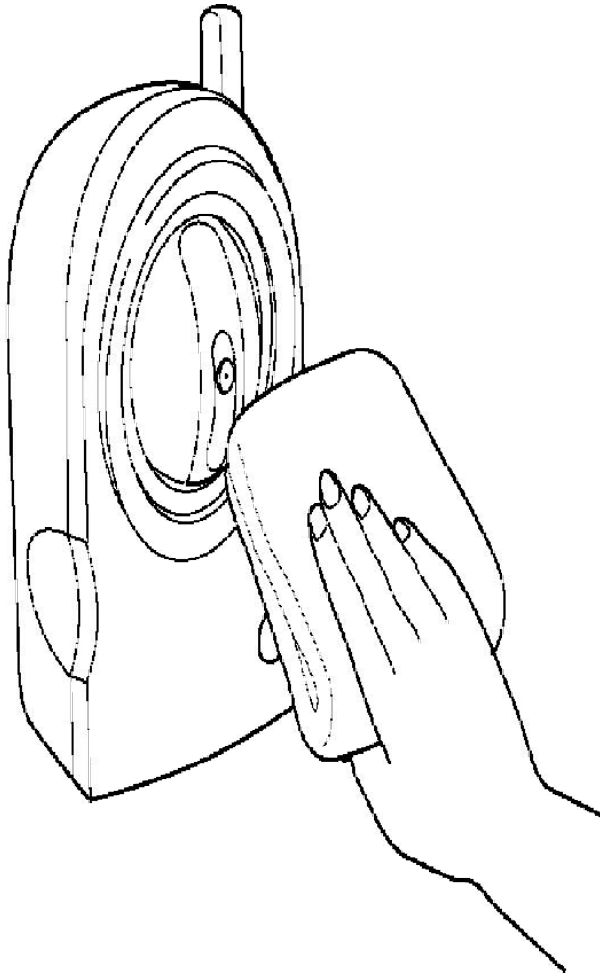
3. Replace the fuse into the fuse carrier and resecure into the mains plug.

3.7. CLEANING

Clean the camera after the camera is turned off.

3.7.1. Cleaning the Main Unit

Clean the unit with a dry and soft cloth.

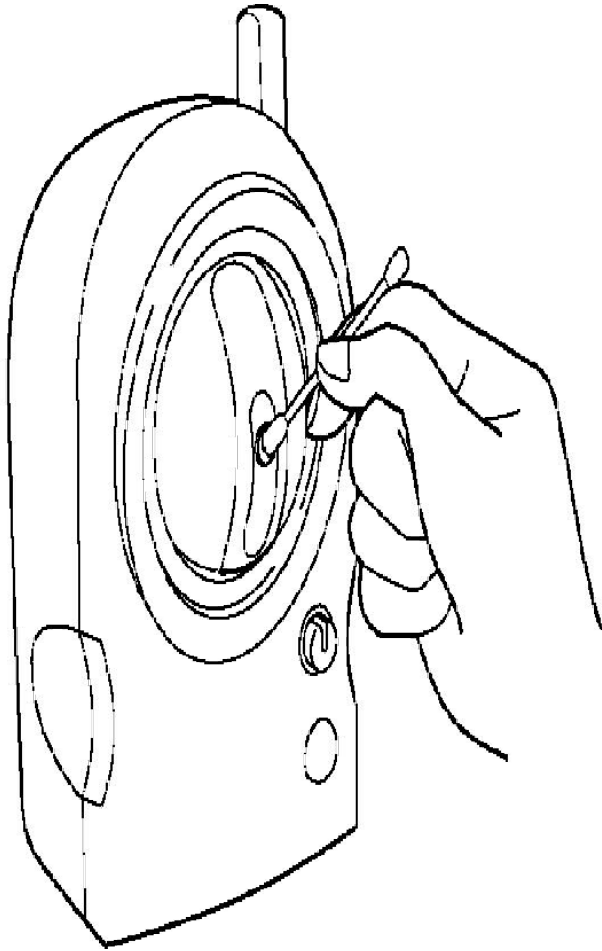


Note:

- **Do not use alcohol, polishing powder, cleanser, benzine, thinner, wax, petroleum products or hot water to wipe the camera. Also avoid pesticide, glass cleaner or hair spray. They may cause change in shape or color.**
- **Do not apply pressure to the pan/tilt portion of the camera. Any forced movement can damage the internal mechanism.**
- **If the pyroelectric infrared sensor has dust on it, it may not detect temperature differences. Keep the pyroelectric infrared sensor clean.**

3.7.2. Cleaning the Lens

If the lens has dust on it, the image may be unclear or out of focus.



Note:

Do not touch the lens directly. Fingerprints may cause an unclear image.

4. SPECIFICATIONS

Network Camera

Items	Specifications
Pan/Tilt Angle	Pan: -50° to +50°, Tilt: -40° to +10°
Number of Pixels	1/4-inch CMOS Sensor 320,000 pixels
Illuminance	1-10,000 lx
White Balance	Auto/Manual/Hold
Focus	Fixed 0.5m (20 inches) - Infinity
Caliber Ratio (F No.)	F2.8
Horizontal Viewing Angle	43°
Exposure	Auto

Other Specifications

Items	Specifications
Video Compression	JPEG (3 Levels)
Video Resolution	640 x 480, 320 x 240 (default), 160 x 120
Buffered Image *1	About 250 frames (320 x 240) with time display
Frame rate *2	Max. 7.5 frames/second (640 x 480) Max. 15 frames/second (320 x 240 or 160 x 120)
Supported Protocols	TCP, UDP, IP, HTTP, FTP, SMTP, DHCP, DNS, DDNS, ARP, ICMP, POP3, NTP
Message Transfer Condition	Pyroelectric Infrared Sensor or Timer
Image Transfer Method	SMTP, FTP
Interface	Wired: 10Base-T/100Base-TX Ethernet RJ-45 connector x 1 Wireless: IEEE 802.11b/g (Embedded)
Sensor Detection Method	Pyroelectric Infrared Sensor
Sensor Range	Horizontally About 30°, Vertically About 85°, Distance About 5 m (16.4 feet) (When the temperature is 20 °C [68 °F])
Indicator Display	Power/Network Communication/Camera operation/Ethernet link
Dimension (WHD)	About 74 mm (2.91 inches) x About 98 mm (3.86 inches) x About 73 mm (2.87 inches)
Weight	200 g (0.44 lb.) (Only the unit)
Power Supply	AC adaptor: Input 100-240 V AC, 50/60 Hz Output 12 V DC, 750 mA Consumption: About 4.5 W (6.4 W during pan/tilt scan)
Temperature	Operation: +5 °C (+41 °F) to +40 °C (+104 °F) Storage: +0 °C (+32 °F) to +50 °C (+122 °F)
Humidity	Operation: 20%-80% (No Condensation) Storage: 20%-90% (No Condensation)

Wireless Specifications

Items	Specifications
Communication mode (Communication Standard)	IEEE 802.11b, 802.11b/g, 802.11g exclusive
Data Transfer Mode	Direct Sequence Spectrum Spread (DS-SS), Orthogonal Frequency Division Multiplexing (OFDM)
Frequency Range	2.412-2.472 GHz
Channels	1-13
Security	WEP (64/128/152 bit), SSID

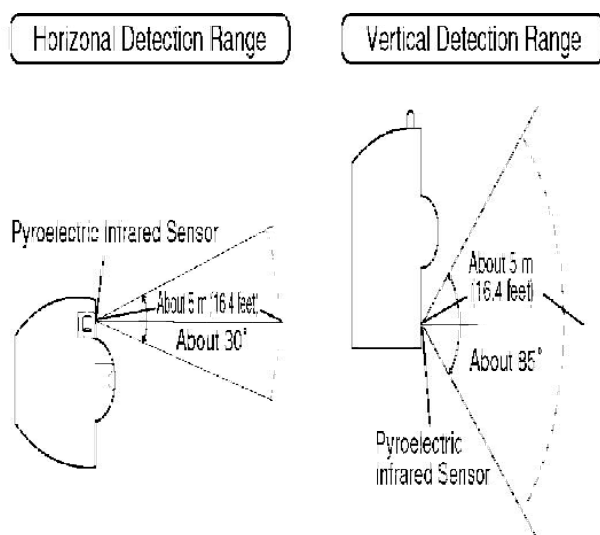
*1) The maximum number of frames changes depending on the image quality and what object you buffer.

*2) Frame rate changes depending on the network environment, the PC performance, the image quality and what object you view.

4.1. ABOUT PYROELECTRIC INFRARED SENSOR

(See Panasonic Network Camera support website at <http://panasonic.co.jp/pcc/products/en/netwcam/> for details about the pyroelectric infrared sensor.)

The sensor (pyroelectric infrared sensor) detects temperature differences with the infrared rays naturally emitted by human or animal bodies. The sensor trigger can activate buffering images to the internal memory or transferring images by E-mail or FTP. The detection range is about 30° horizontally, about 85° vertically and about 5-m (16.4 feet) distance. Since the detection range is easily affected by the environment temperature or how fast the object speed is, consider your mounting location.



Note:

- The sensor can easily detect temperature differences of objects moving sideways within the detection range, but cannot easily detect objects moving slowly towards the sensor. Mount the camera where the objects often pass across the detection range (see Figure 1).
- If the lens position does not match the sensor direction, the buffered or transferred images may not capture the object detected by the sensor (see Figure 2). We recommend you to set the pan/tilt range to match the sensor direction or to restrict the user's access level to disable the pan/tilt operation.

Figure 1

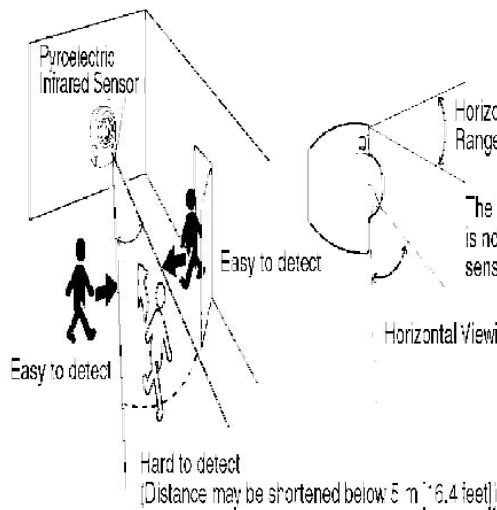
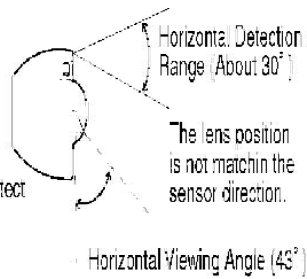
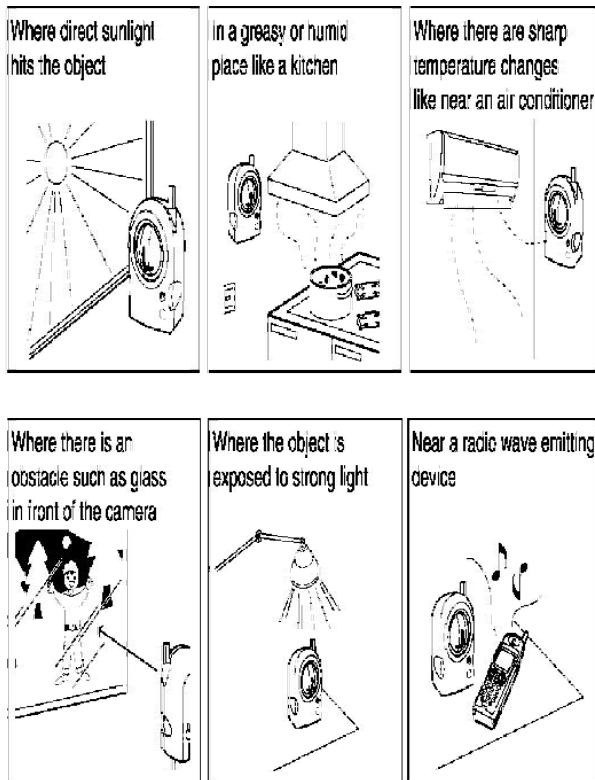


Figure 2



About Location

- If there is no temperature difference between human body and environment like in summer, the sensor may not detect anything.
- If the object is less than about 1 m (40 inches) away from the camera, the camera may detect the object outside the range.
- If the sensor is obstructed, the sensor does not detect anything. Remove the obstacle in front of the sensor.
- The sensor may malfunction in the following areas. Avoid these locations.



4.2. COLOR NIGHT VIEW MODE

- Color night view mode (a to-adjusted) enables the camera to display images even in 1 lx ill minance.
- 1 lx is the brightness about 2.5 m (8.2 feet) away from auxiliary fluorescent light. Color night view mode slows down the frame rate, and images may blur when viewing a moving object or using the pan/tilt operation.
- When viewing a dark image, Color Night View mode a tomatically starts. The image will be brighter, but the refresh interval may slow down and image quality may decrease.
- When the camera is aimed at a dark object when in Color Night View mode, specks of white or colored light may appear in the image. This is a characteristic of the CMOS image sensor. The product is not malfunctioning.

5. MAIN FEATURES

Wireless Communication

Network Camera corresponds to the wireless system based on IEEE 802.11b/g. Wireless installation will play an increasing role in flexible mounting.

Communication via Ethernet cable is also available. Encryption establishes the security on the wireless network.

Various remote monitoring features

- **Pyroelectric infrared sensor *1** detects temperature differences caused by a human body or animals.
- **Detection** can let camera transfer images by E-mail or FTP *2.
- **Color night view mode (auto-adjusted)** enables the camera to display images even in 1 lx ill minance *3.

Monitoring from PC or mobile phone

- **The camera images can be monitored over the Internet.**
- **Pan/Tilt operation** can move the lens horizontally from -50° to +50° and vertically from -40° to +10°.

Privacy mode

- **Privacy mode** hides the lens into the unit to protect privacy.
- **Pressing the privacy button** on the front of the camera switches privacy mode on or off with a single touch.

	Privacy	Monitoring	Purpose
Privacy feature	On	Disabled	Protecting privacy
Monitoring	Off	Enabled	Remote monitoring

Easy installation using UPnP (Universal Plug and Play)

When connecting the camera with a UPnP enabled router, the camera automatically configures its network settings.

* Some UPnP enabled routers cannot configure the camera automatically. In this case, the router needs to be configured manually. Ask the router manufacturer how to configure it. See Panasonic Network Camera support website at <http://panasonic.co.jp/pcc/products/en/netwkcaml/> for more information.

Supporting Viewnetcam.com service

Viewnetcam.com service allows you to access the camera over the Internet with your favorite domain name (e.g. bob.viewnetcam.com) instead of a global IP address.

* Viewnetcam.com service is the service for Panasonic Network Camera. See Viewnetcam.com website (<http://www.viewnetcam.com>) for more information.

Multi-Language Display

Top page, Single Camera and Multi-Camera page can be displayed in English, French, German, Italian, Spanish, Russian, Simplified Chinese or Japanese. If you select English or Japanese, all pages can be changed. But if you select other language, the Setup, Maintenance and Support pages are displayed only in English.

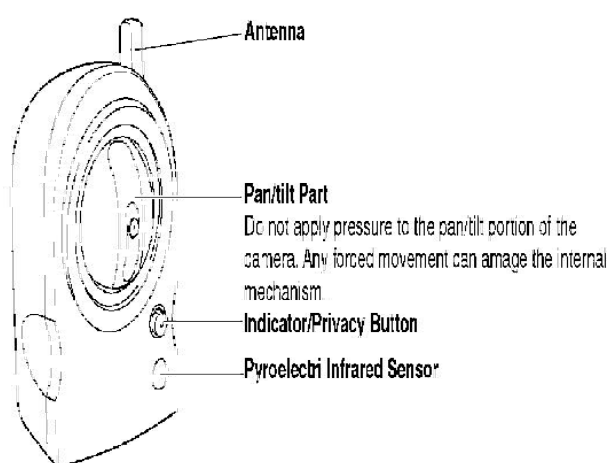
*1 The sensor uses pyroelectric effect. Due to the effects of environment temperature, direct sunlight or air conditioner, it may detect the temperature differences by mistake, or the detection range may be shortened.

*2 It may take some time to transfer images depending on the network condition.

*3 1 lx is the brightness about 2.5 m (8.2 feet) away from auxiliary fluorescent light. Color night view mode slows down the frame rate, and images may blur when viewing a moving object or using the pan/tilt operation.

6. PARTS LOCATIONS

6.1. FRONT VIEW



Privacy Button

To temporarily deactivate the camera, press the privacy button. Once pressed, the button changes from green to red. The video will be temporarily turned off, camera features become unresponsive and the viewed image turns to a gray screen. To return to normal operation, press the privacy button again. It should turn green within a few seconds. To restore video, click [Refresh] on the web browser. Privacy mode can also be controlled from mobile phones or PCs.

Indicator Display

Power on	Not on the LAN	Orange → Orange blinking
	On the LAN	Orange → Orange and green blinking → Green
Normal Operation *1		Green
Automatic Setup	Setting	Green blinking
	Finished setting	Green
Using DHCP	Getting IP address *2	Orange blinking → Green blinking
	Got IP address	Green
Updating Firmware		Orange blinking
Pressing FACTORY DEFAULT RESET button		Orange blinking → Turning off (The camera restarts about 1 minute later.)
UPnP Failure *3		Orange blinking (About a 2-second interval)
In Privacy Mode		Red
Internal Failure		Red blinking

*1) The indicator turns orange if the camera is not connected to the LAN.

*2) The indicator blinks orange if the camera is not connected to the LAN.

*3) When the sensor is active, the interval between blinks may increase.

6.2. BOTTOM VIEW

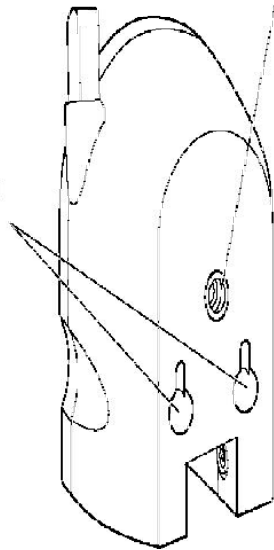


6.3. REAR VIEW

Stand Mounting Hole

Used when installing the camera onto a wooden wall with a stand.

Used when installing the camera onto a wooden wall.



Note:

If the ceiling is made of wood, the camera can be installed on the ceiling. See Panasonic Network Camera support website at <http://panasonic.co.jp/pcc/products/en/netwkcaml/> for details.

7. CONNECTING YOUR NETWORK CAMERA

7.1. PREPARATION

Prepare the following before connecting the Network Camera.

- Set up software (Setup CD-ROM)
- PC to fulfill the system requirements.
- Ethernet Router or Wireless Router for LAN Connection.
- Ethernet cable (two pieces of Category 5 straight cable).

SYSTEM REQUIREMENTS

Your PC (Personal Computer) and network must meet the following technical specifications for the camera to work properly.

Item	Description
Operating System	Microsoft ® Windows ® XP Microsoft ® Windows ® 2000 Microsoft ® Windows ® Me Microsoft ® Windows ® 98SE
CPU	Pentium ® III (500 MHz or greater is recommended.)
Protocol	TCP/IP protocol (HTTP, TCP, UDP, IP, DNS, ARP, ICMP)
Interface	10/100 Mbps network card installed
Web Browser	Internet Explorer 6.0 or later (Not included on the Setup CD-ROM)

Note:

See Panasonic Network Camera support website at <http://panasonic.co.jp/pcc/products/en/netwcam/> for the latest information about web browser.

Abbreviations

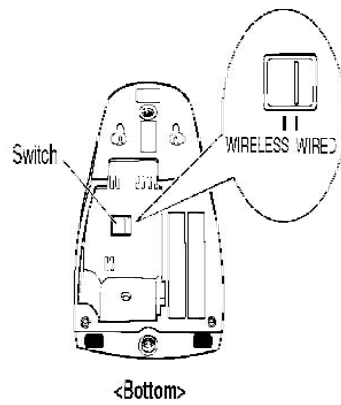
- **UPnP™** is the abbreviation for Universal Plug and Play.

7.2. CONNECT THE CAMERA TO YOUR ROUTER

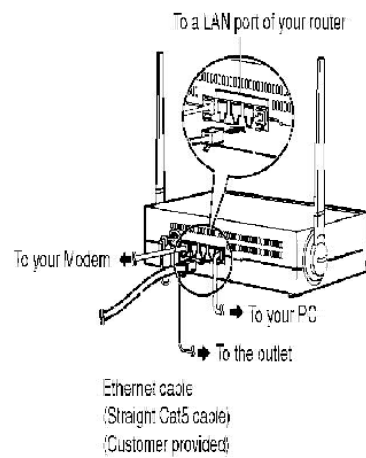
Connect the camera to your router with an Ethernet ® cable to set up the camera.

- **Before you begin the installation, the UPnP feature in your router needs to be enabled. Usually, the default setting disables this feature. For more info, please visit, <http://panasonic.co.jp/pcc/products/en/netwcam/> or contact your router's manufacturer.**
- **These instructions assume your PC is already connected to the Internet and your home network includes a router that is UPnP (Universal Plug and Play) compliant.**
- **The camera will be connected to your router using a "straight" Cat5 network cable (customer-provided).**

- 1. Confirm that the switch on the bottom of the camera is set to wired.**



2. Connect the Ethernet cable to your router.



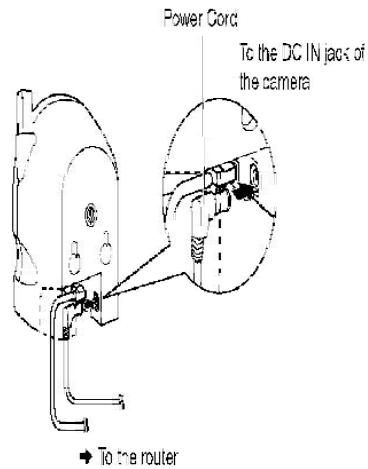
3. Connect the Ethernet cable to the camera.



7.3. TURN THE CAMERA ON

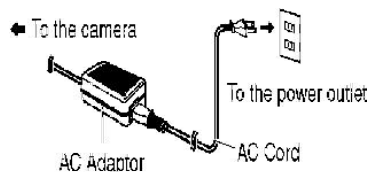
Inserting the AC adaptor to the outlet powers up the camera.

1. Connect the power cord from the AC adaptor to the DC In jack.



2. Connect the AC plug of the AC cord to the power outlet.

- When you operate the camera, the power outlet should be near the camera and easily accessible.
- Use only specified Panasonic AC adaptor PQLV202 (Order No.PQLV202X).



3. After the lens moves (pan/tilt operation), confirm that the indicator lights green after a minute.

- If the indicator does not light green, see page 15 and 16 of the Installation/Troubleshooting.
- A noise can be heard during pan/tilt operation. This is normal.

7.4. SETUP THE CAMERA

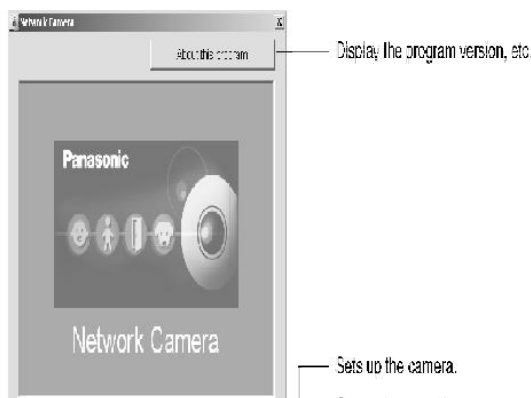
Important

- **To avoid any possible problems, temporarily disable any firewall or antivirus software.**
- **This procedure explains installation of the camera on the same network that your PC is part of.**
- **Before proceeding, close your web browser.**

1. Insert the Setup CD-ROM into the CD-ROM drive of the PC.

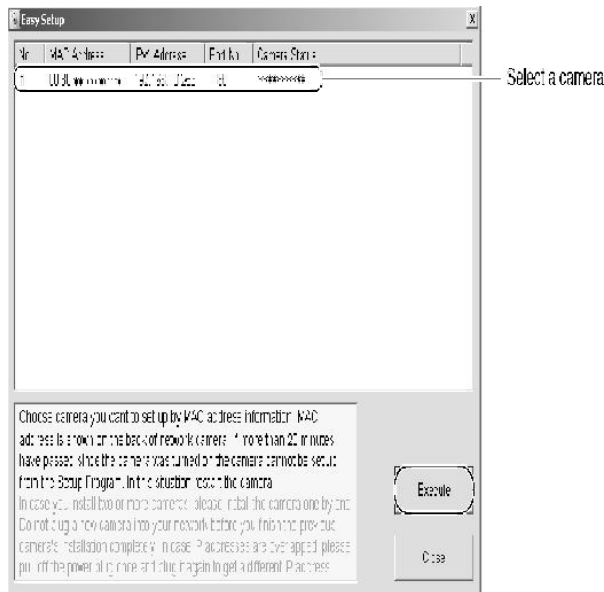
(If the Network Camera Setup window is not displayed automatically, double-click "Setup.exe" file on the Setup CD-ROM.)

2. Click [Camera Setup].



3. Select the camera to set up and click [Execute].

- **This program searches for the cameras that are connected to the router and displays the MAC Addresses, IP addresses and Port Numbers.**

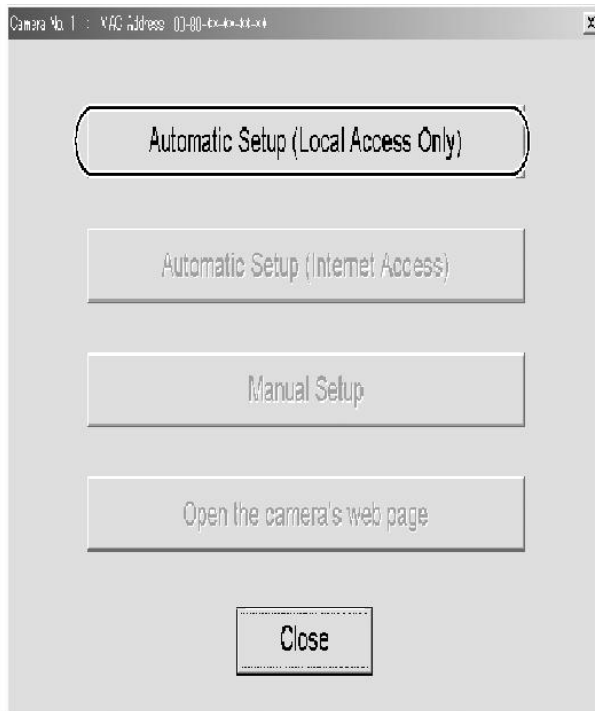


- When searching for multiple cameras, the cameras can be identified with the MAC Addresses labeled near the Ethernet (LAN) port of the cameras.

Note:

- If more than 20 minutes have passed since the camera was turned on, the camera cannot be set up from the Setup Program. In this situation, restart the camera.
- The Setup Program may not list any cameras due to your firewall or antivirus soft-ware settings on your PC. If you cannot disable your firewall or antivirus software, you can set up the camera entering the camera MAC address.

4. Click [Automatic setup (Local Access Only)].



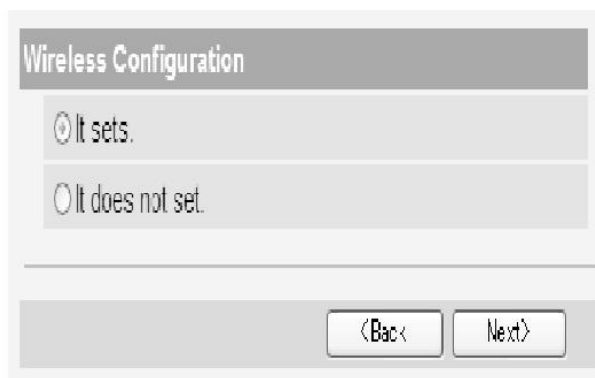
- For the first time installation or after pressing the Factory Default Reset button, only [Automatic Setup (Local Access Only)] can be selected. To set up the camera with Static or DHCP settings, after performing the [Automatic Setup (Local Access Only)], run the Setup Program again and select [Manual Setup].

5. Enter the user name and password, and click [Save].

6. The Enter Network Password window is displayed. Enter the user name and password that were set, and click [OK].

7. To set the Wireless Configuration, check [Enable] and click [Next>].

- When [Disable] was selected, skip to step 9.



The image shows a 'Wireless Configuration' screen. At the top, there is a title bar labeled 'Wireless Configuration'. Below it, there are two radio button options: 'It sets.' (which is selected) and 'It does not set.'. At the bottom of the screen, there are two buttons: '<Back' and 'Next>'.

- The Wireless Configuration can also be set at [wireless] in the Setup Page.

8. Set the Wireless Configuration.

Wireless Configuration

1 — SSID: BUC24xxxx

2 — Communication mode: 802.11b, 802.11b/g, 802.11g exclusive

3 — Encryption: No encryption

4 — WEPKey1: ASCII 13 characters (28 bit), WEPKey2: ASCII 13 characters (28 bit), WEPKey3: ASCII 13 characters (28 bit), WEPKey4: ASCII 13 characters (28 bit)

Back Next

1. Set the SSID.

Set the name of the wireless network.

2. Select the Communication mode.

They are IEEE Communication modes. Select the same Communication mode as that of the router to which the camera is connected.

802.11b (IEEE802.11b) : Only 802.11b wireless router can be connected.

802.11b/g (IEEE802.11g) : Either 802.11b or 802.11g router can be connected.

802.11g exclusive (IEEE802.11g) : Only 802.11g router can be connected.

3. Select encrypting or not encrypting.

Selecting WEP can encrypt data within the wireless LAN.

WEP : Encrypting (setting WEP) makes it difficult for unauthorized users to read data within the wireless LAN, even if they can receive it. To encrypt data, set the same encryption key to every terminal within the wireless LAN. There are 3 kinds of encryption key: 64 bit, 128 bit and 152 bit. Security level of encryption increases in

9. When the Single Camera page is displayed, the setup is completed.

- If Security Warning window is displayed to install ActiveX Controls, click [Yes].

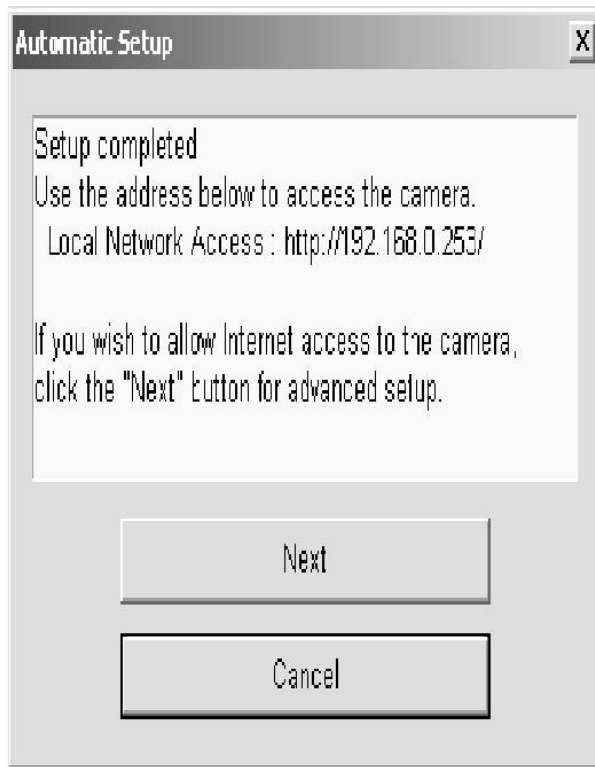


- The image is a simulated screen image.

Note:

Check [Every visit to the page] for "Temporary Internet files" on your web browser. If it is not checked, the camera may display old images.

9. Click [Next] to set up the Internet access to the camera and go to step on the next page..



- Click [Cancel] and go to 7.6. **CONFIRMING THE WIRELESS LANSETUP** , if you mount the camera.

7.5. TO SET UP INTERNET ACCESS TO THE CAMERA

1. Select the camera on the camera list to set up the Internet access and click [Execute].
- This program searches for the cameras that are connected to the router and displays the MAC Addresses, IP addresses and Port Numbers.

- When searching for multiple cameras, the cameras can be identified with the MAC Addresses labeled near the Ethernet (LAN) port of the

cameras.

Note:

If more than 20 minutes have passed since the camera was turned on, the camera cannot be set up from the Setup Program. In this situation, restart the camera.

2. Click [Automatic Setup (Internet Access)].



- For the first time installation or after pressing the Factory Default Reset button, only [Automatic Setup (Local Access Only)] can be selected. To set up the camera with Static or DHCP settings, after performing the [Automatic Setup (Local Access Only)], run the Setup Program again and select [Manual Setup].

3. The Enter Network Password window is displayed. Enter the username and password that were set, and click [OK].



The image shows a Windows-style dialog box titled "Enter Network Password". It contains a key icon and the text "Please type your user name and password." Below this are two labels, "Site:" and "Realm:", each followed by a masked password field (asterisks). There are two text input fields labeled "User Name" and "Password". At the bottom, there is a checkbox labeled "Save this password in your password list" which is currently unchecked. Two buttons, "OK" and "Cancel", are at the bottom right. The "OK" button is highlighted with a red circle.

4. To enable access over the Internet, check [Enable]. Not to enable access over the Internet, check [Disable]. And click [Next>].



The image shows a dialog box titled "Allow Access from the Internet". It contains two radio button options: "Enable" and "Disable". The "Enable" radio button is selected.

- If you select [Disable], skip to step 8.

Registration with the "Viewnetcam.com FREE DDNS service"

By registering with the Viewnetcam.com FREE DDNS service, you can create a personalized web address at which your camera's live video can always be found on the Internet. For detailed information, access "<http://www.viewnetcam.com>".

5. To register with the "Viewnetcam.com FREE DDNS service", check [Register with Viewnetcam.com] and click [Next>].



- When [Do not register with Viewnetcam.com] was selected at step 5, skip to step 8.

6. The Enter Network Password window is displayed. Enter the user name and password that were set, and click [OK].

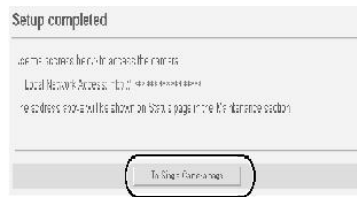
7. After a while, the "Viewnetcam.com FREE DDNS service" website is displayed. Follow the displayed instructions for registration.

- If the message "Failed to configure the router's Port Forwarding by UPnP" is displayed, your router may not support UPnP or UPnP is not enabled. Enable your router's UPnP or set Port Forwarding manually following the router's manual and try Automatic Setup again. For more information about setting up a router, refer to the Panasonic Network Camera support web-site at <http://panasonic.co.jp/pcc/products/en/netwkcam>.
- If the message "Failed to register with Viewnetcam.com." is displayed, con-firm that the router is connected to the Internet.

8. When "Setup complete" is displayed, click [To Single Camera page].

- When [Enable] was selected at step 4.

- When [Disable] was selected at step 4.



Note:

- The port number must be specified at the end of camera URL.
For example
Using port 80: **http://(Cameraname).viewnetcam.com** or **http://IP Address**
Using any other port: **http://(Cameraname).viewnetcam.com:Port Number** or **http://IP Address:Port Number**
 - The URL for the local network access may be different from the one set up on the previous page.
9. When the Single Camera page is displayed, the setup is completed.
- If Security Warning window is displayed to install ActiveX Controls, click [Yes].



- The image is a simulated screen image.

Note:

Check [Every visit to the page] for "Temporary Internet files" on your web browser. If it is not checked, the camera may display old images.

7.6. CONFIRMING THE WIRELESS LANSETUP

After setting each item for the wireless LAN, confirm that the camera works correctly.

1. Unplug the Ethernet cable and turn off the power (disconnect the AC plug).
2. Set the switch on the bottom of the camera to wireless.
3. Turn on the power by connecting the AC plug to the power outlet.

- The camera switches from wired to wireless.

4. Start up the web browser on the PC.

5. Enter "http://IP address (or URL):Port No." in the address field and press [Enter].

(When port number is 80 (default), you do not need to enter port number.)

- When the following Top Page is displayed, the wireless LAN setup is successful.



- If the Top Page was not displayed, the settings for the camera are not identical with those for the router. Check the settings by using wired connection.

If the settings are correct and you use a proxy server, set the web browser not to access the proxy server.

If the Top Page is not displayed even after trying these methods, contact the retailer.

- It takes about 1 minute for the new settings to be effective.
- It is not possible to access the camera simultaneously by both wired and wireless connection.
- Enter both the MAC addresses for the camera itself and the camera's wireless module to enable the MAC address filtering

feature on the wireless router. The wireless module MAC address is one value higher than the camera MAC address.

8. DISASSEMBLY INSTRUCTIONS

8.1. HOW TO REMOVE RF BOARD

1. Remove two Screws (A). And remove the Cabinet Cover.	
2. Remove Screw (B) and Antenna Cable.	

3. Remove Antenna Cable from RF Board, and remove RF Board from Cabinet body.	
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8.2. HOW TO REMOVE MAIN BOARD AND I/O BOARD

- 1-3 are the same as 8.1. HOW TO REMOVE RF BOARD.

4. Remove three Screws (B). 5. Remove Main Board and I/O Board form Cabinet Body.	
--	--

- | | |
|--|--|
| <p>6. Remove Sub Flat Cable from Main Board.</p> <p>7. Remove Main Board from I/O Board.</p> | |
|--|--|

8.3. HOW TO REMOVE SUB BOARD

- 1-3 are the same as **HOW TO REMOVE RF BOARD.**
- 4, 5 are the same as **HOW TO REMOVE MAIN BOARD AND I/O BOARD.**

- | | |
|--|--|
| <p>6. Remove two Screws (B).</p> <p>7. Remove Antenna from Cabinet Body.</p> | |
|--|--|

- | | |
|---|--|
| <p>8. Remove six Screws (B).</p> <p>9. Remove Eye Block, Pan Motor Angle, Connect Angle and Washer.</p> | |
| <p>10. Remove two Screws (B).</p> <p>11. Remove Sub Flat Cable from Sub Board.</p> | |

8.4. HOW TO REMOVE LENS UNIT

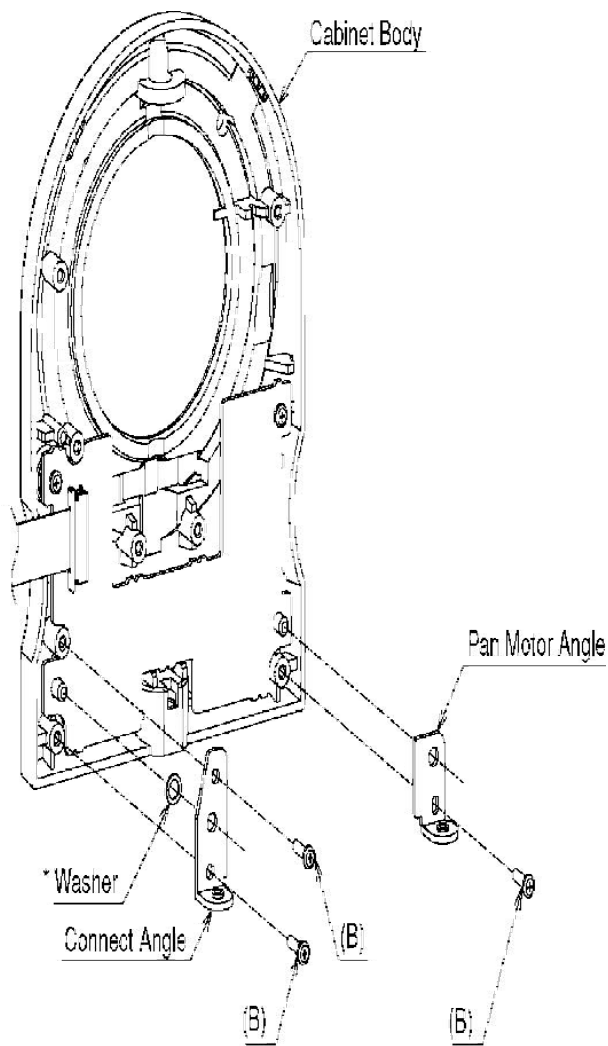
- 1-3 are the same as 8.1. **HOW TO REMOVE RF BOARD.**
- 4, 5 are the same as 8.2. **HOW TO REMOVE MAIN BOARD AND I/O BOARD.**
- 6-9 are the same as 8.3. **HOW TO REMOVE SUB BOARD.**

10. Remove two Screws (B). 11. Remove Tilt Motor Unit from Eye Block. 12. Remove two Spacers, Pan Gear and Pan Motor Unit from Eye Block.	
13. Remove two Screws (B). 14. Remove Eye Left Cover, Eye Center Cover and Eye Right Cover from Eye Block.	

9. THE CAUTIONS AT THE TIME OF ASSEMBLY

9.1. SUB FLAT CABLE INSERTION INSTRUCTION

Put together Lens Button, Button Sheet, and Sub Board in a Cabinet Body, and fix with screws (B).
Insert Sub Flat Cable into connector.

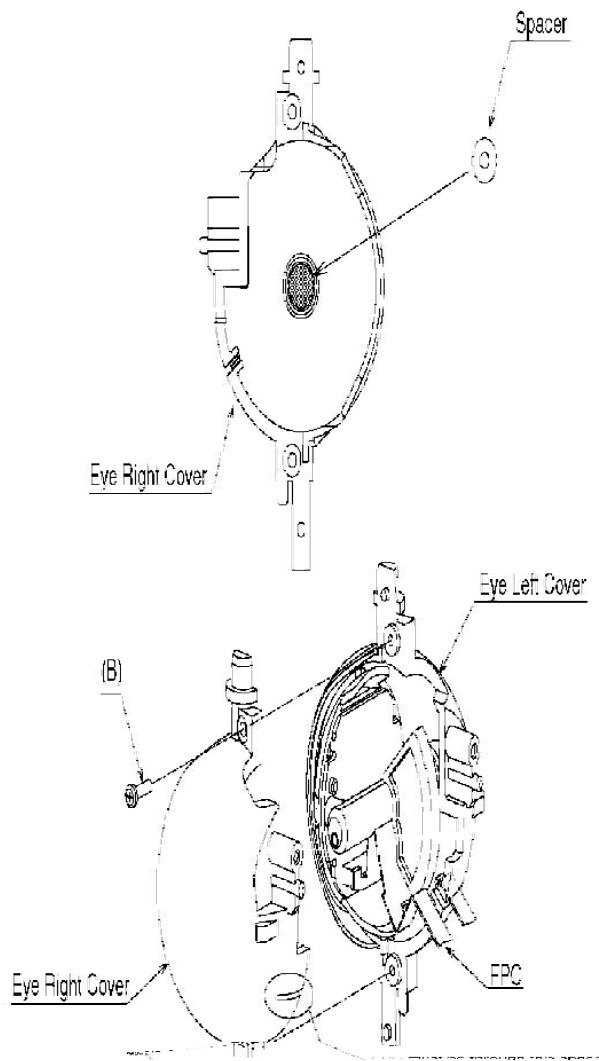


9.3. ASSEMBLING INSTRUCTION OF EYE BLOCK

Insert Spacer into the boss of Eye Right Cover, then fix with Eye Left Cover and Screws (B).

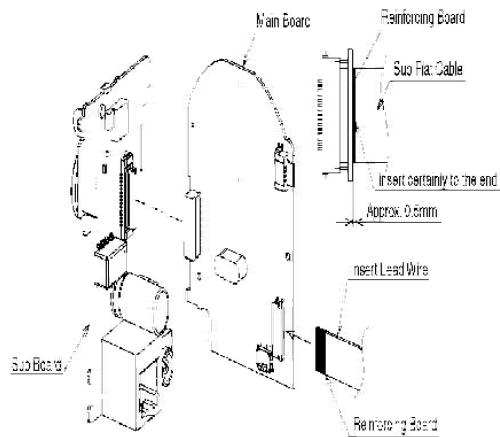
Caution

After inserting the Spacer, the Lens Unit should be in the Eye Right Cover position for assembly to prevent the Spacer from dropping out.

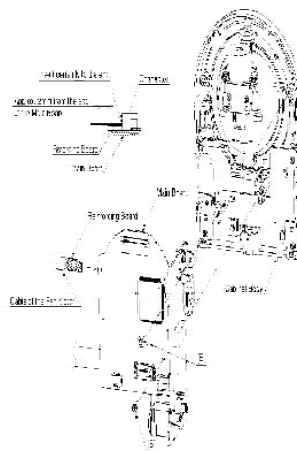


9.4. ASSEMBLING INSTRUCTION OF PAN MOTOR UNIT CABLE

1. Insert the Sub Flat Cable into the Main Board, and mount the Main Board and the Sub Board to the Cabinet Body and fixing it with Screws.
2. Insert the Cable of the Pan Motor to the Jig Board and turn on the power to of the board to check the home position operation of the Pan. If a step-out occurs during the home position operation, it is judged as being NG. After the check, take out the Pan Motor Cable.

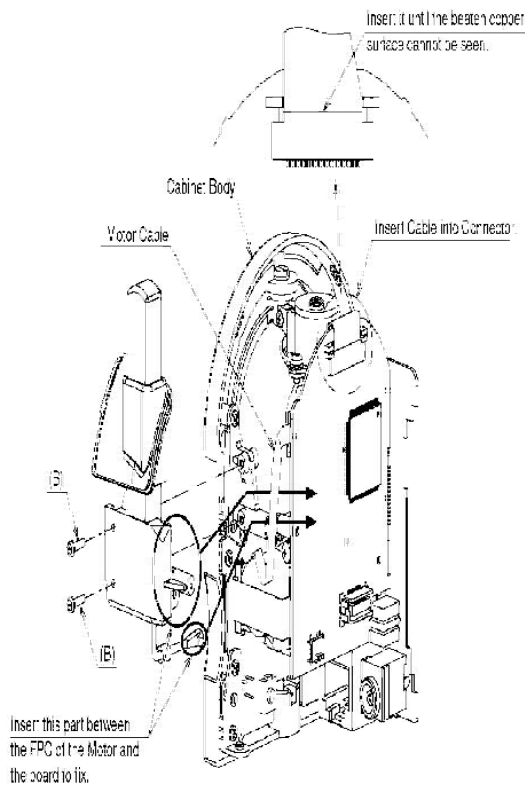


3. Insert the Cable of the Pan Motor to the Main Board



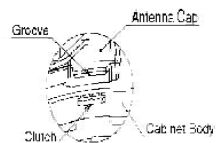
9.5. ASSEMBLING INSTRUCTION OF ANTENNA

Mount the Antenna to the Cabinet Body and fix it with Screws (B).



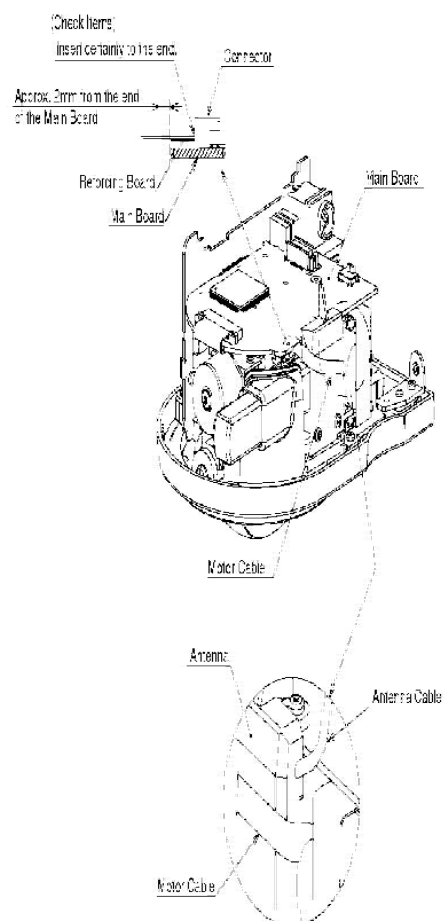
Note:

Before fixing the Antenna to the Cabinet Body, check that the clutch of the Cabinet Body fits to the groove of the Antenna Cap securely.



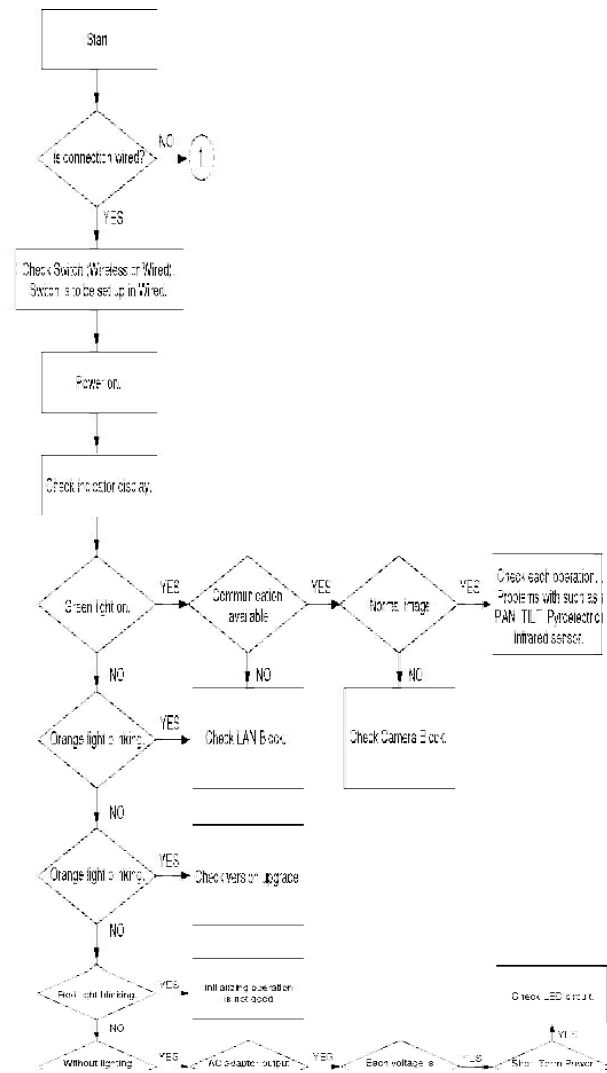
9.6. ASSEMBLING INSTRUCTION OF ANTENNA CABLE

1. Check that the Motor Cable is inserted properly.
2. Check the alignment of the Motor Cable.

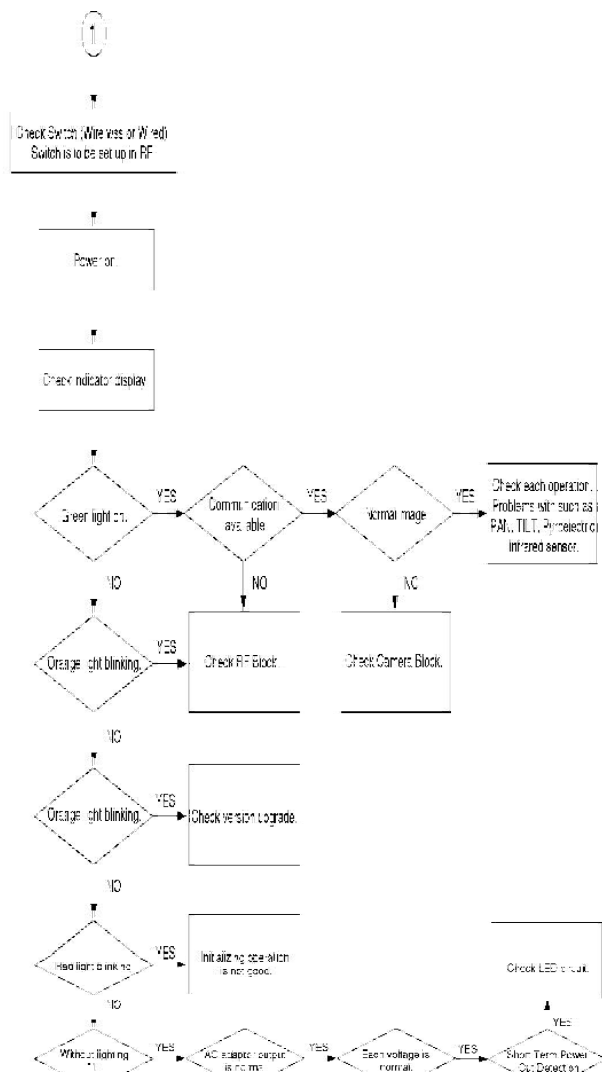


10. TROUBLE SHOOTING

10.1. STARTING UP OPERATION

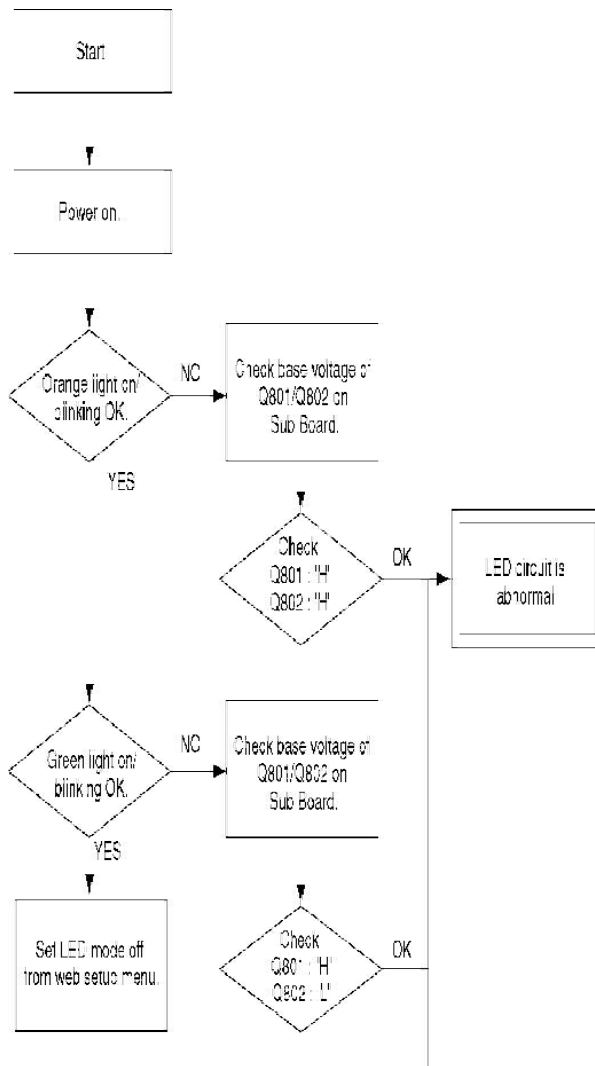


***1 It does not turn on, when LED mode is "OFF" on web setup menu.**



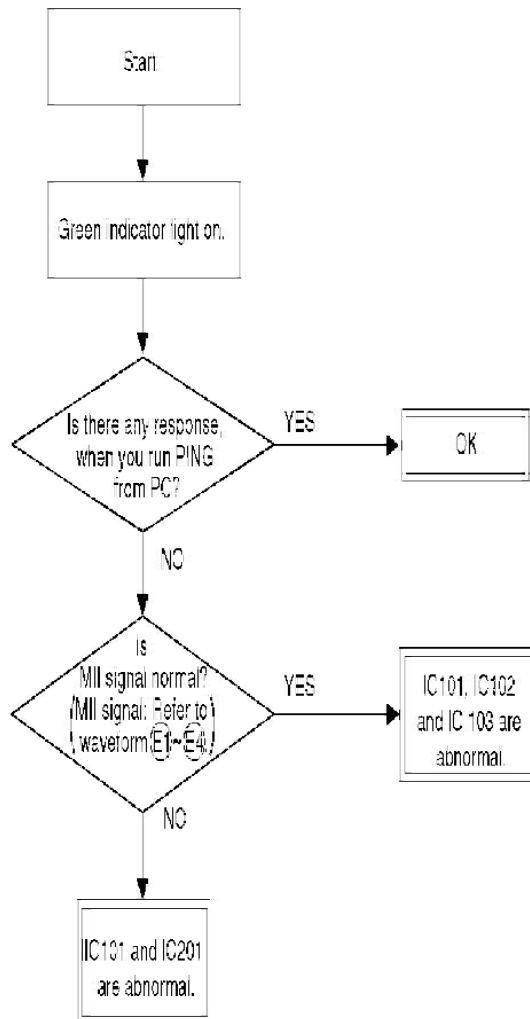
*1 It does not turn on, when LED mode is "OFF" on web setup menu.

10.2. LED CIRCUIT CHECK

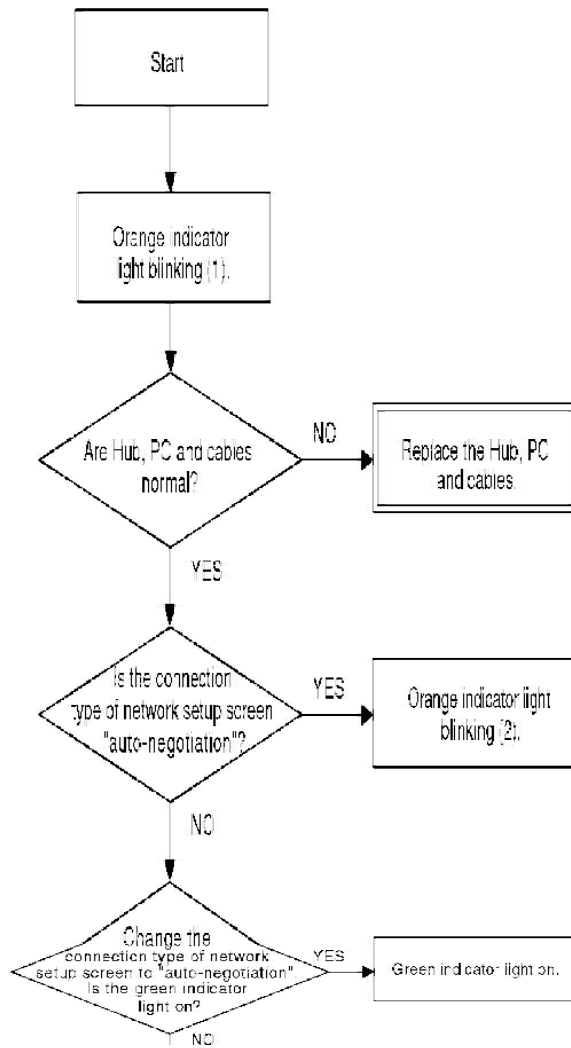


10.3. LAN BLOCK CHECK

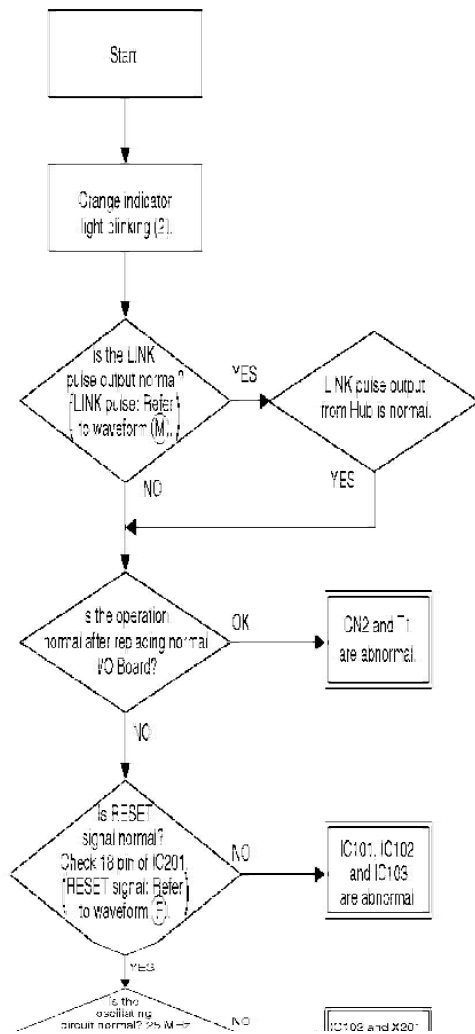
10.3.1. Green Light On



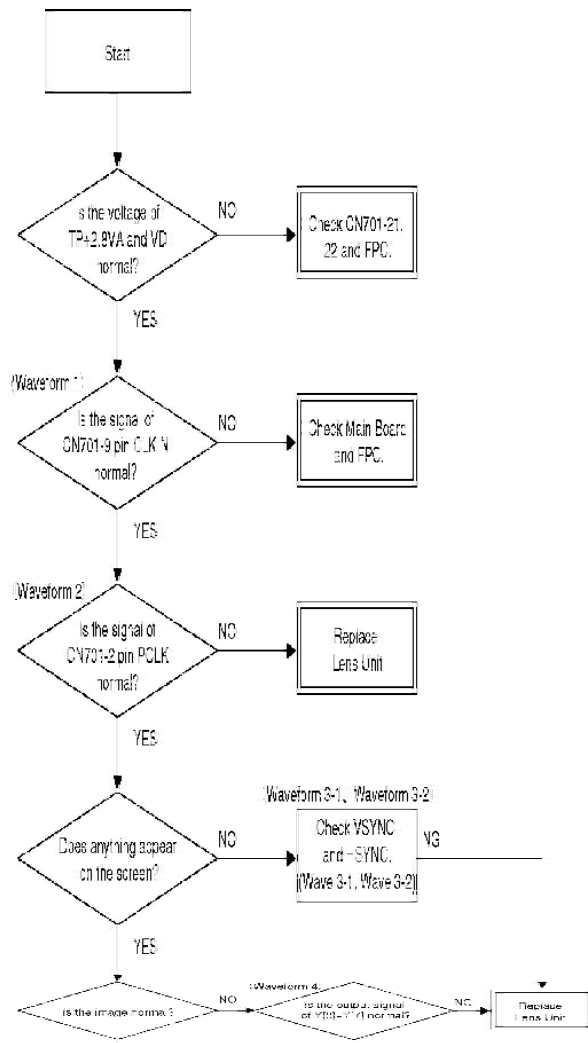
10.3.2. Orange Light Blinking (1)



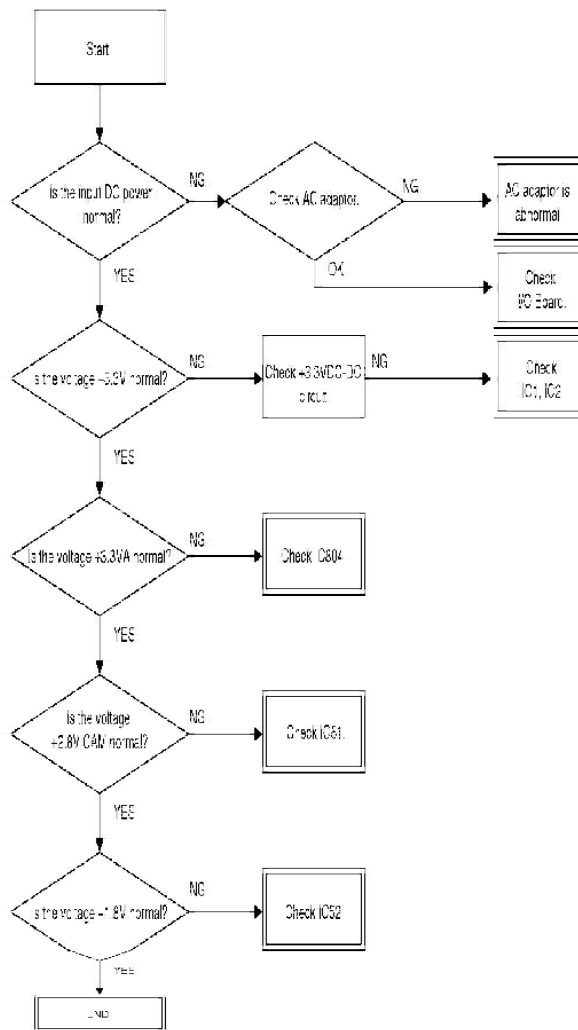
10.3.3. Orange Light Blinking (2)



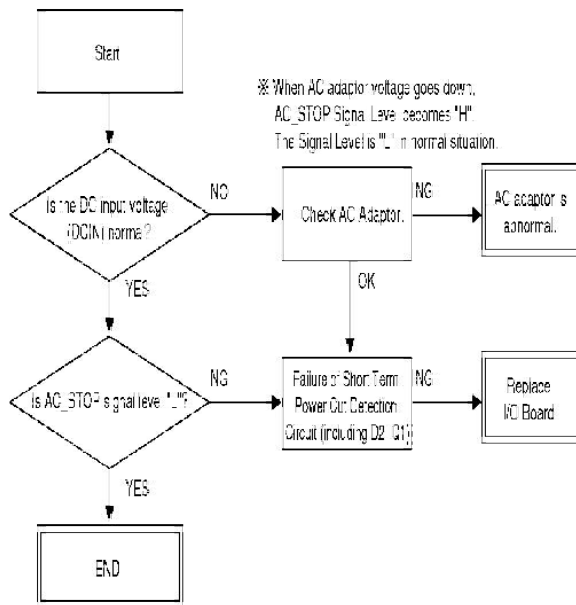
10.4. CAMERA BLOCK CHECK



10.5. POWER SUPPLY BLOCK CHECK

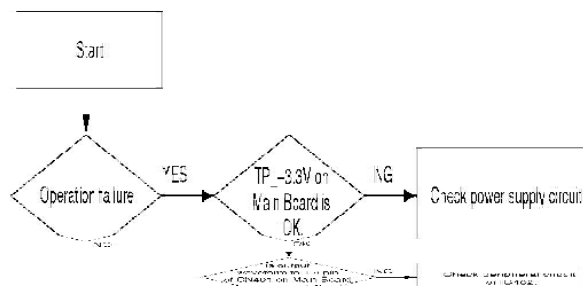


10.5.1. Short Term Power Cut Detection Circuit Check

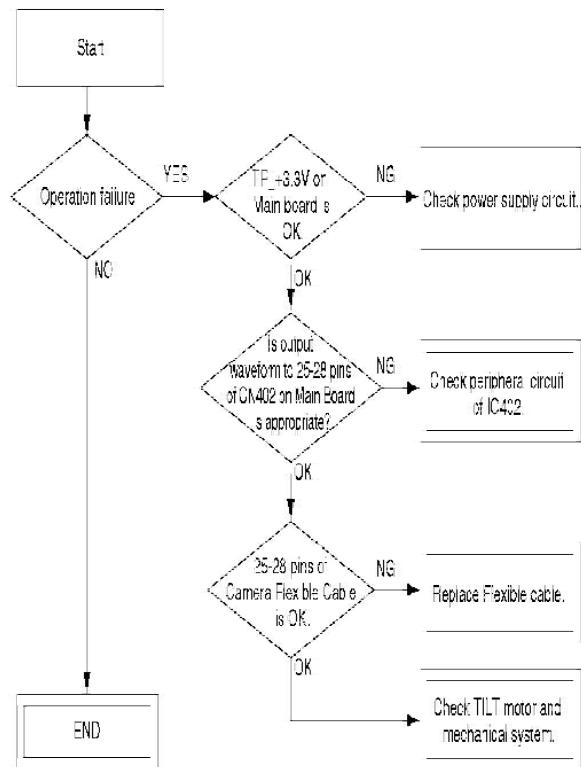


10.6. OTHER OPERATION CHECK

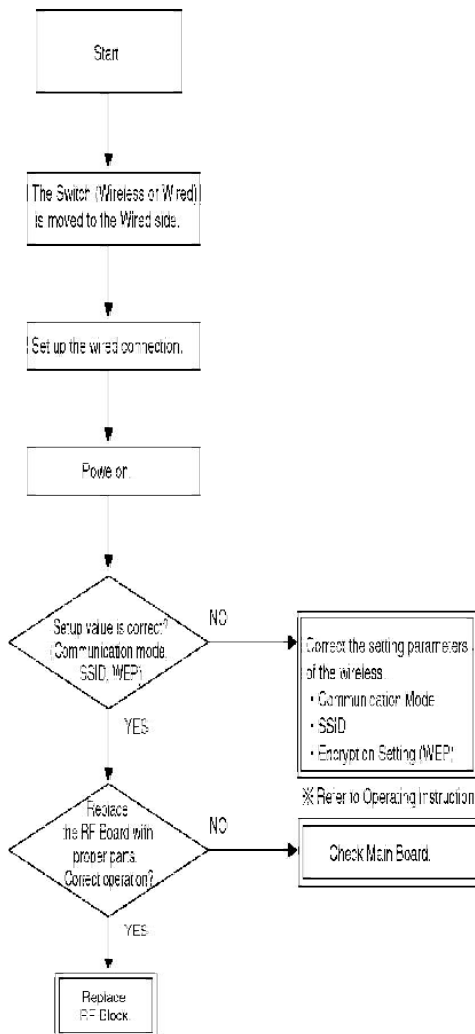
10.6.1. PAN Operation Check



10.6.2. TILT Operation Check



10.7. PYROELECTRIC INFRARED SENSOR CHECK



10.9. THE INSPECTION AFTER THE REPAIR

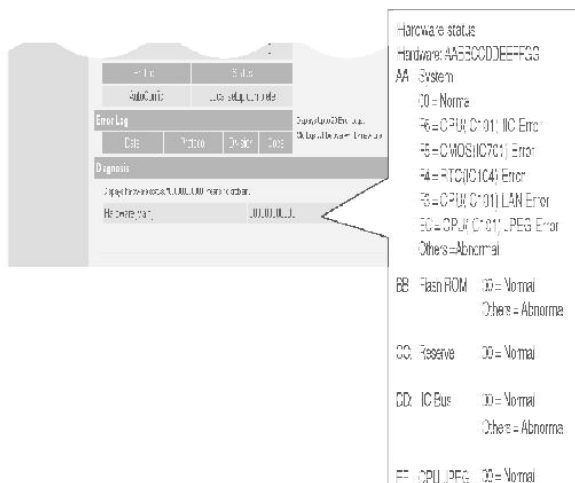
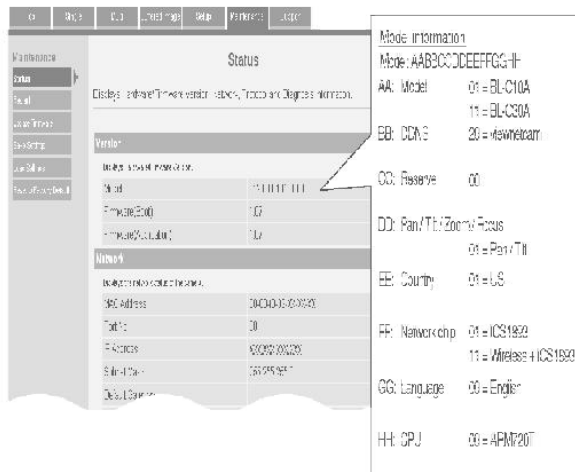
Inspect the following items after the repair.

- Confirm the status (specially MAC Address) refer to **CONFIRMING THE STATUS**.
- PAN/TILT operation
- Pyroelectric Infrared Sensor
- Video quality

10.10. CONFIRMING THE STATUS

When turning on the power, CPU makes a check using the self-diagnosis function. Check being able to the access to the device described below.

When the self-diagnosis function of the device described below is NG turning on the power, CPU makes a check using the LED indicator red-blinks.

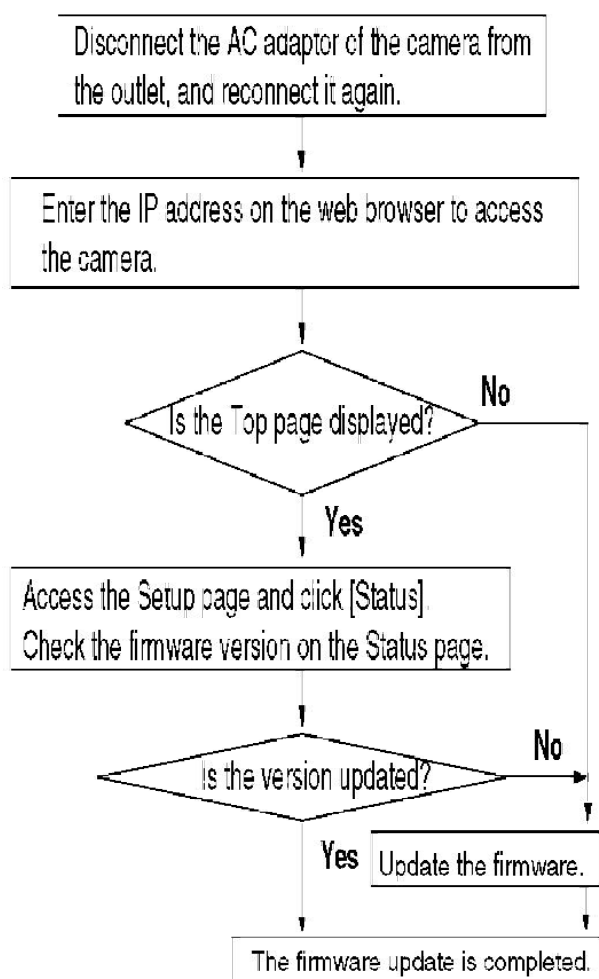


10.11. UPDATE FIRMWARE

10.11.1. Firmware Trouble Shouting

The firmware updating is not completed due to power off, network failure or other causes.

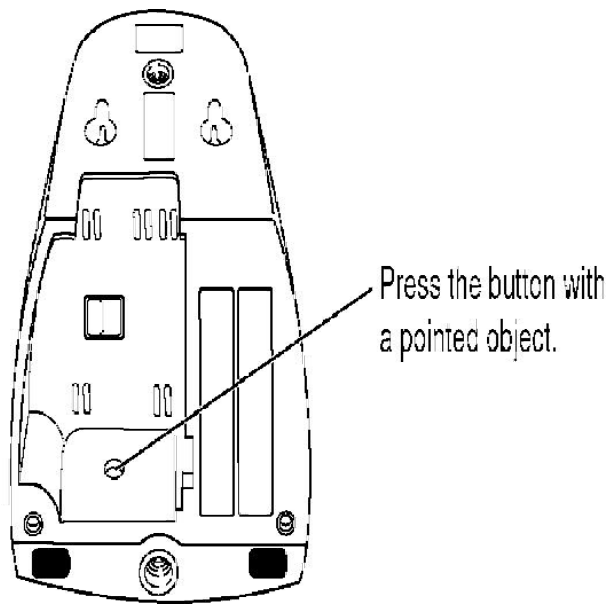
Update the firmware again following the next procedures.



11. THE WAY OF THE INITIALIZE

11.1. FACTORY DEFAULT RESET BUTTON

The camera has a FACTORY DEFAULT RESET button on the bottom.



Pressing the **FACTORY DEFAULT RESET** button resets the camera to factory default. If you lose your user name and password, use this button to reset the camera.

- **Press the FACTORY DEFAULT RESET button for 1 second when the camera is on.**
- **See Operating Instructions for default settings.**
- **The indicator blinks orange, and then turns off for 10 seconds.**
- **Do not turn off the camera until the indicator lights green.**

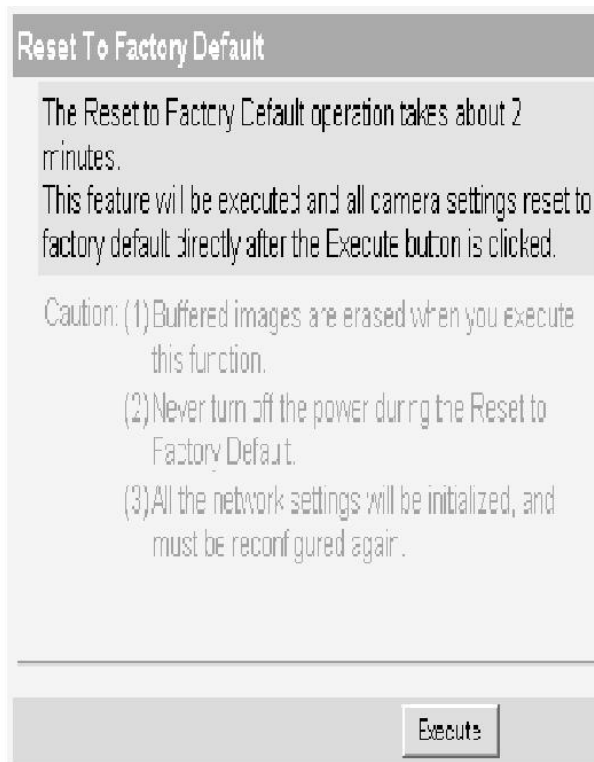
Note:

- **The Internal clock will not be reset, but the time format will return to AM/PM mode. Set it again.**
- **All buffered images are deleted when resetting the camera to factory default.**
- **The reset operation takes about 1 minute.**

11.2. RESETTING THE CAMERA TO FACTORY DEFAULT

All camera settings are reset to factory default directly after the Execute button is clicked.

1. Click [Reset to Factory Default] on the Maintenance page.
2. Click [Execute].



- The indicator blinks orange, and turn off for 10 seconds.
- All camera settings (user name, password, IP address, subnet mask etc.) are reset to factory default.
- If the camera is reset to factory default, the network connection mode changes to [Automatic Setup]. Reconfigure the camera seeing the Getting Started.

Note:

- Internal clock will not be reset, but the time format will return to AM/PM mode. Set it again.
- Please refer to Operating Instructions for default settings.
- Pressing FACTORY DEFAULT RESET button resets the camera to the factory default.
- All buffered images are deleted when resetting the camera to factory default.
- The reset operation takes about 1 minute.
- Do not turn off the camera during the reset operation.

12. NETWORK CAMERA BL-C30 BLOCK DIAGRAM

13. CIRCUIT DESCRIPTION

13.1. MAIN BOARD

13.1.1. CPU Block

CPU (IC101)

Operating Power Supply: 3.3V (for I/O) 1.8V (for Core) 1.8V (for Inside PLL) 2.8V (Camera I/O)

Package: 144 pin QFD

Internal Component: 32bit RISC ARM720T, Hardware JPEG Encoder, Memory Controller, 10/100Base Ethernet MAC, I2C I/F, Serial I/F, SRAM (48KB) and etc are built-in.

Outline of Operation: All system Control and image data from the camera is changed to JPEG data. Then, it is changed to packet and sent out from Ethernet I/F.

32.768 KHz is entered as External Clock and increase at Internal PLL. Then, it operates at 48.955 MHz.

Flash Memory (IC102) and SDRAM (IC103) are accessed by CPU Bus.

CMOS sensor (IC701) and Real Time Clock IC (IC104) on the Camera Block are accessed by I2C I/F.

Ethernet PHY (IC201) is accessed by MII (Media Independent Interface) I/F.

FLASH MEMORY (IC102)

Operating Power Supply: +3.3V

Package: 48 pin Ball CSP

Capacity: 16Mbit

Access Time: 70ns

Outline of Operation: Stores programs for CPU operation, MAC address and customer setup data.

Version up is available from Ethernet I/F.

SDRAM (IC103)

Operating Power Supply: +3.3V

Package: 54 pin TSOP

Capacity: 64Mbit

Outline of Operation: Stores the memory for CPU work and temporary saved images.

RESET IC (IC105)

Reset voltage: 2.9V

Package: 4 pin SOP

Outline of Operation: When 3.3V power starts up, it emits about 150ms reset pulse after detecting 2.9V.

Clear Setting Button (SW104)

Outline of Operation: It is possible to bring back the setting value of a Network Camera to a factory-shipments state, when you push.

GPI0

- Motor (PAN/TILT) Operation
- Clear Setting SW
- Privacy Mode SW
- I2C
- LED

- Pyroelectric Infrared Sensor
- Short Term Power Cut Detection

Port No.	IC101 PIN No.	Usage	Description
GPIOA0	79	TXD0	Serial(Not in use.)
GPIOA1	80	RXD0	Serial(Not in use.)
GPIOA2	81	PAN Motor 1	PAN Motor Control
GPIOA3	82	PAN Motor 2	PAN Motor Control
GPIOA4	83	PAN Motor 3	PAN Motor Control
GPIOA5	84	PAN Motor 4	PAN Motor Control
GPIOA6	85	I2C(SCL)	I2C I/F(Clock)
GPIOA7	86	I2C(SDA)	I2C I/F(Data)
GPIOB0	89	RF_P1	For RF Port Input(Application is not decided)
GPIOB1	90	RTS	Serial(Not in use.)
GPIOB2	91	CTS	Serial(Not in use.)
GPIOB3	92	CLEAR SETTING Switch	SW104
GPIOB4	94	Short Term Power Cut Detection	Interruption
GPIOB5	95	Pyroelectric Infrared Sensor	
GPIOB6	96	RF_P3	For RF Port Output(Application is not decided)
GPIOB7	97	RF_P2	For RF Port Output(Application is not decided)
GPIOC0	103	Camera I/F(CMDATA0)	Camera Data Signal
GPIOC1	104	Camera I/F(CMDATA1)	Camera Data Signal
GPIOC2	106	Camera I/F(CMDATA2)	Camera Data Signal
GPIOC3	107	Camera I/F(CMDATA3)	Camera Data Signal
GPIOC4	108	Camera I/F(CMDATA4)	Camera Data Signal
GPIOC5	109	Camera I/F(CMDATA5)	Camera Data Signal
GPIOC6	110	Camera I/F(CMDATA6)	Camera Data Signal
GPIOC7	111	Camera I/F(CMDATA7)	Camera Data Signal
GPIOD0	114	Address A[20]	
GPIOD1	115	MODE	For ICE Mode Recognizing Signal(H: ICE L: Normal)
GPIOD2	116	Power Down	For IC201(PHY), IC701(CMOS Sensor)
GPIOD3	117	nCMOS_RES	For IC701(CMOS Sensor)
GPIOD4	100	Camera I/F(CMVREF)	Camera Vertical Synchronous Signal
GPIOD5	99	Camera I/F(CMHREF)	Camera Horizontal Synchronous Signal
GPIOD6	102	Camera I/F(CMCLKOUT)	For Camera Basic Clock Output Signal

Port No.	IC101 PIN No.	Usage	Description
GPIOD7	101	Camera I/F(CMCLKIN)	For Camera Data Input Pixel Clock
GPIOE0	118	LED_R	LED Control(Red)
GPIOE1	119	LED_G	LED Control(Green)
GPIOE2	124	TILT Motor 1	TILT Motor Control
GPIOE3	121	TILT Motor 2	TILT Motor Control
GPIOE4	120	TILT Motor 3	TILT Motor Control
GPIOE5	125	TILT Motor 3	TILT Motor Control
GPIOE6	126	LENS Button	SW801
GPIOE7	127	Reset	For IC201(PHY)
GPIOF0	45	MII I/F (MII_CRS)	For IC201(PHY) Connection
GPIOF1	46	MII I/F (MII_COL)	For IC201(PHY) Connection
GPIOF2	47	MII I/F (MII_TXD3)	For IC201(PHY) Connection
GPIOF3	48	MII I/F (MII_TXD2)	For IC201(PHY) Connection
GPIOF4	49	MII I/F (MII_TXD1)	For IC201(PHY) Connection
GPIOF5	50	MII I/F (MII_TXD0)	For IC201(PHY) Connection
GPIOF6	52	MII I/F (MII_TXEN)	For IC201(PHY) Connection
GPIOF7	53	MII I/F (MII_TXCLK)	For IC201(PHY) Connection
GPIOG0	54	MII I/F (MII_RXER)	
GPIOG1	57	MII I/F (MII_RXCLK)	For IC201(PHY) Connection
GPIOG2	58	MII I/F (MII_RXDV)	For IC201(PHY) Connection
GPIOG3	59	MII I/F (MII_RXD0)	For IC201(PHY) Connection
GPIOG4	60	MII I/F (MII_RXD1)	For IC201(PHY) Connection
GPIOG5	62	MII I/F (MII_RXD2)	For IC201(PHY) Connection
GPIOG6	63	MII I/F (MII_RXD3)	For IC201(PHY) Connection
GPIOG7	64	MII I/F (MII_MDC)	For IC201(PHY) Connection
GPIOH0	65	MII I/F (MII_MDIO)	For IC201(PHY) Connection

13.1.2. LAN Block

Consists of IC101 (CPU), IC201 (ETHER-PHY), T1 (Trans) and CN2 (RJ45).

T1 (Trans) insulates sets and Ethernet.

IC101 (CPU) and IC201 (ETHER-PHY) are connected by a signal called MIIbus which it makes it possible to transmit/receive Ethernet data.

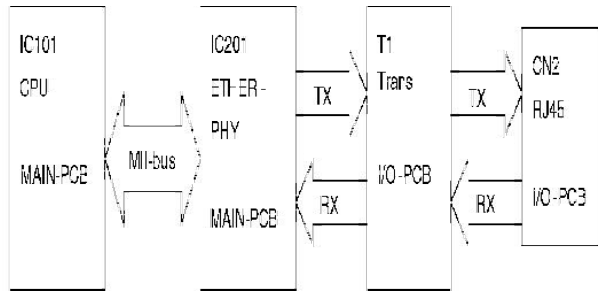
IC201 has Auto Negotiation Function which changes 100BASE-T or 10BASE-TX automatically.

Transmitting Operation

Electric signal from IC101 is changed to Ethernet data on IC201 and it is sent through T1 from CN2.

Receiving Operation

Ethernet data from CN2 is change to electrical signal on IC201 and it is received by IC101.



13.1.3. Camera Block

<Basic Circuit Operation>

This CMOS image sensor which consolidates sensor section and image process DSP by the 0.35umCMOS process consists of one chip. Each pixel which consists of four transistors has a micro lens for increased sensibility. It changes optical energy to analogue voltage. After that, analogue pixel voltage is converted into digital using the 10 bit AD Converter (ADC). At that time, Correlated Double Sampling (CDS) dramatically decreases Formulaic Pattern Noise (FPN).

Analogue pixel voltage data which is converted to digital is finished using Gammacorrection, Color Correction and Color Space Conversion. Those signals are sent out as digital format 8bit span Y/UV with PCLK, Hsync and Vsync signals as a timing interface. In addition, the Image Processing Function of AE (Auto Iris) and AWB (Auto White Balance) is installed and it is automatically operated following an algorithm in the chip.

Exposure control (Auto Iris) is adjusted by shutter speed.

Setting up of each chip register is set at I2C (IC701:22/23 pin) by CPU (IC101) on Main Board.

CMOS Color Image sensor (IC701)

Operating Power Supply: +2.8V It is supplied by Main Board. (3 Terminal Regulator IC51)

- **+2.8VA: Analogue Part Power**

- **+2.8VD: Digital Part Power**

Package: 40pin CLCC

Image Sensor and its Process Circuit are installed.

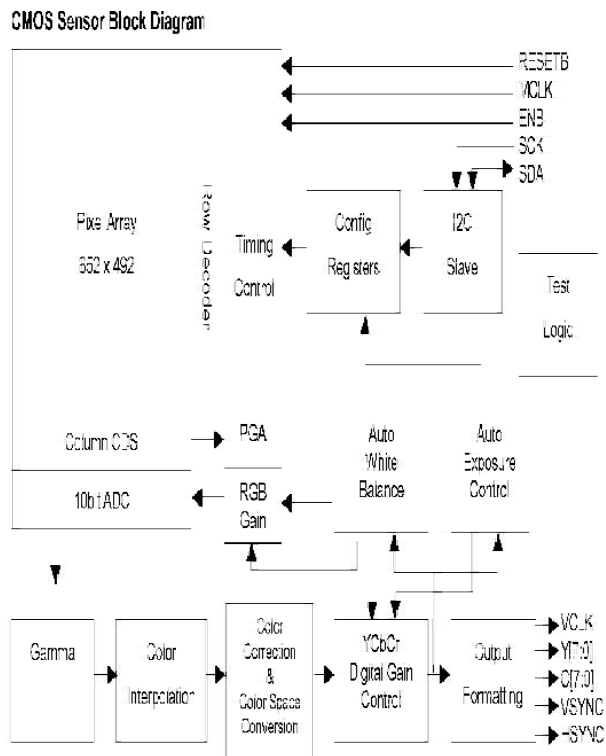
Total Number of Pixels: 652 x 492 pixels

Available Number of Pixels: 652 x 488 pixels

Image Area: 1/4 inch Optical Size

Color Filter: RGB Beyer Alignment

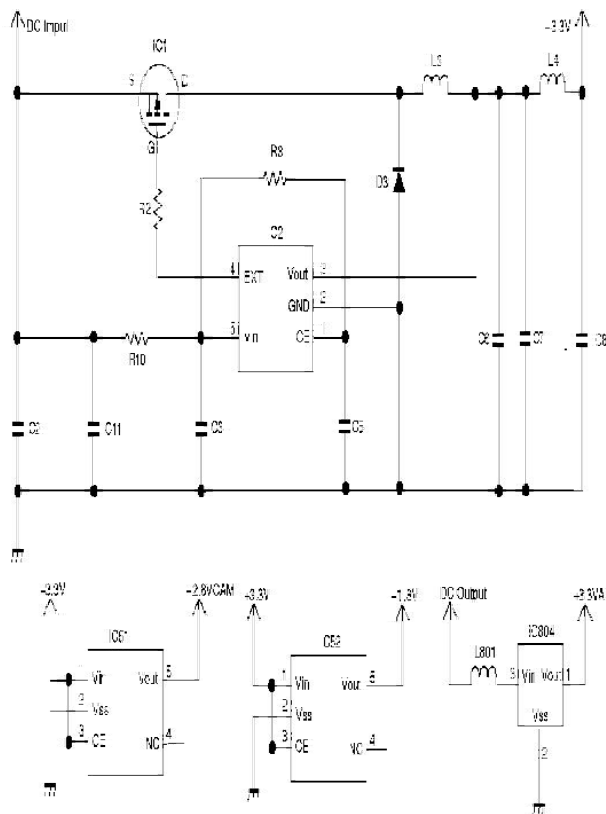
Input Clock: 16.318 MHz (It is supplied by IC101 of Main Board)



1. PGA: Programmable Amplifier

2. Color Correction and Color Space Conversion are merged into one matrix operation for hardware simplification.

Detail Circuit Diagram is showed as below.



13.1.5. RTC

Real Time Clock (IC104)

Operating Power Supply: 3.3V (3V battery for back up)

Package: 14 pin SOP

Outline of Operation: Stores Clock Data and supplies 32.768 KHz Clock Signal to CPU (IC101).

Backup Battery provides power when power supply is out.

Lithium Battery (BAT1)

Output Voltage: 3V

Capacity: 125mAh

Outline of Operation: A backup power supply for Real Time Clock (IC104).

13.1.6. Pyroelectric Infrared Sensor Block

Pyroelectric Infrared Sensor (IC801)

Operating Power Supply: +3.3V

Package: 3 pin Board Insertion Type

Changes temperature variation into analogue signal which it emits, when a heat source, such as a person, comes into detection area.

The analogue signal is amplified by Operational Amplifier (IC802).

2 Circuits Built-in Operational Amplifier (IC802)

Operating Power Supply: +3.3V

Package: 8 pin SSOP

Amplifies analogue signal from Pyroelectric Infrared Sensor (IC801).

The amplified analogue signal goes into Comparator (IC803).

2 Circuits Built-in Comparator (IC803)

Operating Power Supply: +3.3V

Package: 8 pin SSOP

Composes Window Comparator Circuit. It generates digital signal (H – L) to CPU, when the amplified analogue signal from Operation Amplifier is over stipulated voltage. (Standard value is about 0.6~1.6V.)

Operation of Pyroelectric Infrared Sensor

- 1. Pyroelectric Infrared Sensor (IC801) emits analogue signal, when a heat source, such as a person, moves into the detection area.**
- 2. Above signal is amplified by Operation Amplifier (IC802) which emits analogue signal.**
- 3. Above signal is input to Comparator (IC803) and generates digital signal (H – L), when signal amplitude is over standard voltage.**
- 4. Above digital signal is input to CPU (IC101).**

13.1.7. PAN Control Block

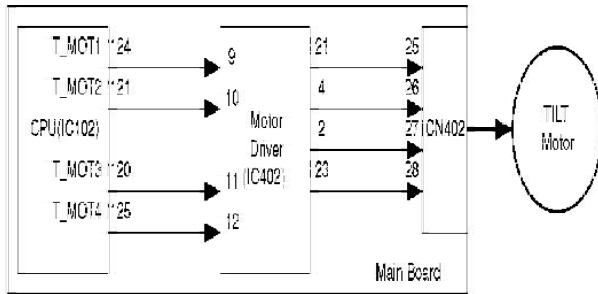
A pan motor operates, when CPU (IC101) on a Main Board controls the Motor Driver IC (IC402) on the same board.

A Constant Voltage Bipolar Drive System is employed. The Voltage of Motor Power (VM) is 3.3V. ø15 Stepping Motors are employed.

13.1.8. TILT Motor Control Block

A Tilt motor operates, when CPU (IC101) on a main board controls the motor driver IC (IC402) on the same board.

A Constant Voltage Bipolar Drive System is employed. The Voltage of Motor Power (VM) is 3.3V. ø15 Stepping Motors are employed.



13.1.9. LED Control Block

LED is controlled by CPU which is mounted on Main Board. Control data is input into LED Control Circuit which is mounted on Sub Board. (Three color LED is employed.)

LED_R	LED_G	Color of LED
L	L	OFF
L	H	Green
H	L	Red
H	H	Orange

13.2. RF BLOCK

- Antenna

- Receiver

The receiving signal from the antenna is input to the RFIC (IC502) after being passed through the Antenna Switch (IC506) and amplified at LNA (Low Noise Amp). The RFIC (IC502) incorporates the LNA (Low Noise Amp), the Mixer for Frequency Converter and the Synthesizer generating the Receiving Local Signal. At the RFIC (IC502), the input signal is separated into the baseband signals of the In-Phase(RxI) and Quadrature (RxQ) to output.

The baseband signal is input to the CPU&MAC/BBIC(IC601) and, after A/D conversion, the data are regenerated.

- Transmitter

The Data Frame (Data Packet) generated at the built-in MAC Part by the CPU&MAC/BBIC (IC601) is converted to the In-Phase (TxI) and the Quadrature (TxQ) and input to the RFIC (IC502).

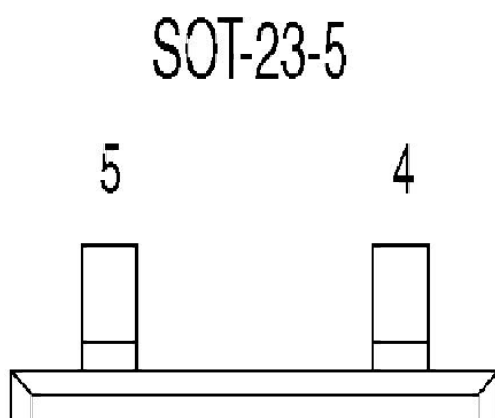
At the RFIC (IC502), it is converted to the RF Signal of the transmitting frequency band.

After processing including impedance conversion, level adjustment and control of the unnecessary frequency component, it is sent from the antenna through the Antenna Switch (IC506).

The RF Signal from the Power Amp (IC505) is fed back to the RFIC (IC502) after level detection. The gain is adjusted in the RFIC (IC502) for a constant transmitter output level.

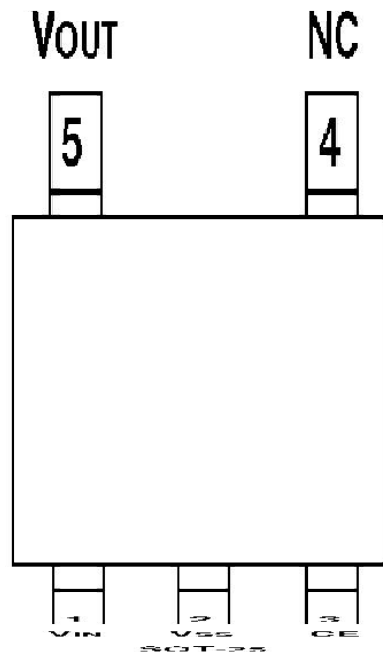
14. IC DATA

14.1. IC2



Pin No.	Pin Name	Description
1	CE	Chip enable terminal ("H" ACTIVE)
2	GND	GND terminal
3	VOUT (FFB)	Output voltage monitoring terminal
4	EXT	External Tr drive terminal (CMOS output)
6	VIN	Power input terminal

14.2. IC51, 52



Pin No.	Pin Name	Description
1	VIN	Power input terminal
2	VSS	Ground terminal
3	CE	ON/OFF control terminal
4	NC	No connection
5	VOUT	Output terminal

14.3. IC101

1	MA14	MA14	144
2	MA15	MA15	145
3	MA16	MA16	146
4	MA17	MA17	147
5	MA18	MA18	148
6	VSS8	MA19	149
7	MA19	MA20	150
8	MACSP	MA21	151
9	MACS1	MA22	152
10	MACS0	MA23	153
11	LVDD11	MA24	154
12	MA0L	MA25	155
13	MA0H	MA26	156
14	MAWE1	MA27	157
15	HVDC1_1b	MA28	158
16	MCKEN	MA29	159
17	MCLK	MA30	160
18	VSS18	MA31	161
19	MA3AS	MA32	162
20	MACAS	MA33	163
21	ND0	MA34	164
22	ND1	MA35	165
23	ND2	MA36	166
24	ND3	MA37	167
25	VSS25	MA38	168
26	LVDD26	MA39	169
27	ND4	MA40	170
28	ND5	MA41	171
29	ND6	MA42	172
30	ND7	MA43	173
31	HVDC1_2a	MA44	174
32	ND8	MA45	175
33	ND9	MA46	176
34	ND10	MA47	177
35	ND11	MA48	178
36	VSS36	MA49	179
37	MA10	MA50	180
38	MA11	MA51	181
39	MA12	MA52	182
40	MA13	MA53	183
41	MA14	MA54	184
42	MA15	MA55	185
43	MA16	MA56	186
44	MA17	MA57	187
45	MA18	MA58	188
46	MA19	MA59	189
47	MA20	MA60	190
48	MA21	MA61	191
49	MA22	MA62	192
50	MA23	MA63	193
51	MA24	MA64	194
52	MA25	MA65	195
53	MA26	MA66	196
54	MA27	MA67	197
55	MA28	MA68	198
56	MA29	MA69	199
57	MA30	MA70	200
58	MA31	MA71	201
59	MA32	MA72	202
60	MA33	MA73	203
61	MA34	MA74	204
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63	MA36	MA76	206
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81	MA54	MA94	224
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83	MA56	MA96	226
84	MA57	MA97	227
85	MA58	MA98	228
86	MA59	MA99	229
87	MA60	MA100	230
88	MA61	MA101	231
89	MA62	MA102	232
90	MA63	MA103	233
91	MA64	MA104	234
92	MA65	MA105	235
93	MA66	MA106	236
94	MA67	MA107	237
95	MA68	MA108	238
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99	MA72	MA112	242
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101	MA74	MA114	244
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104	MA77	MA117	247
105	MA78	MA118	248
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109	MA82	MA122	252
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144	MA117	MA157	287
145	MA118	MA158	288
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148	MA121	MA161	291
149	MA122	MA162	292
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185	MA158	MA198	328
186	MA159	MA199	329
187	MA160	MA200	330
188	MA161	MA201	331
189	MA162	MA202	332
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255	MA228	MA268	398
256	MA229	MA269	399
257	MA230	MA270	400
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259	MA232	MA272	402
260	MA233	MA273	403
261	MA234	MA274	404
262	MA235	MA275	405
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265	MA238	MA278	408
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321	MA294	MA334	464
322	MA295	MA335	465
323	MA296	MA336	466
324	MA297	MA337	467
325	MA298	MA338	468
326</			

Pin No.	Pin Name	Type	Pin No.	Pin Name	Type
1	MA14	O	46	MII_COL	I/O
2	MA15	O	47	MII_TXD3	I/O
3	MA16	O	48	MII_TXD2	I/O
4	MA17	O	49	MII_TXD1	I/O
5	MA18	O	50	LVDD	P
6	VSS	P	51	MII_TXD0	I/O
7	MA19	O	52	MII_TXEN	I/O
8	MCS2#	O	53	MII_TXCLK	I/O
9	MCS1#	O	54	MII_RXER	I/O
10	MCS0#	O	55	VSS	P
11	LVDD	P	56	HVDD1	P
12	MOE#	O	57	MII_RXCLK	I/O
13	MWE0#	O	58	MII_RXDV	I/O
14	MWE1#	O	59	MII_RXD0	I/O
15	HVDD1	P	60	MII_RXD1	I/O
16	MCLKEN	O	61	LVDD	P
17	MCLK	O	62	MII_RXD2	I/O
18	VSS	P	63	MII_RXD3	I/O
19	MRAS#	O	64	MII_MDC	I/O
20	MCAS#	O	65	MII_MDIO	I/O
21	MD0	I/O	66	VSS	P
22	MD1	I/O	67	CLKI	I
23	MD2	I/O	68	PLL VSS	P
24	MD3	I/O	69	VCP	O
25	VSS	P	70	PLL VDD	P
26	LVDD	P	71	RESET#	I
27	MD4	I/O	72	TESTEN	I
28	MD5	I/O	73	TRST#	I
29	MD6	I/O	74	TCK	I
30	MD7	I/O	75	TMS	I
31	HVDD1	P	76	TDI	I
32	MD8	I/O	77	TDO	O
33	MD9	I/O	78	VSS	P
34	MD10	I/O	79	GPIOA0	I/O
35	MD11	I/O	80	GPIOA1	I/O
36	VSS	P	81	GPIOA2	I/O
37	MD12	I/O	82	GPIOA3	I/O
38	MD13	I/O	83	GPIOA4	I/O
39	MD14	I/O	84	GPIOA5	I/O
40	MD15	I/O	85	GPIOA6	I/O
41	MDQML	O	86	GPIOA7	I/O
42	MDQMH	O	87	HVDD1	P
43	HVDD1	P	88	VSS	P
44	VSS	P	89	GPIOB0	I/O
45	MII_COL	I/O	90	GPIOB1	I/O

45	MII_CRS	I/O	90	GPIOB1	I/O
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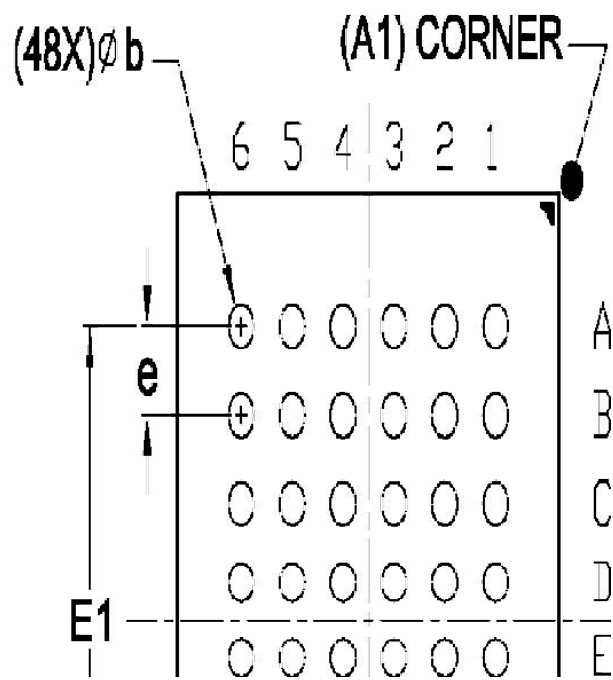
Pin No.	Pin Name	Type			
91	GPIOB2	I/O			
92	GPIOB3	I/O			
93	LVDD	P			
94	GPIOB4	I/O			
95	GPIOB5	I/O			
96	GPIOB6	I/O			
97	GPIOB7	I/O			
98	VSS	P			
99	CMHREF	I/O			
100	CMVREF	I/O			
101	CMCLKIN	I/O			
102	CMCLKOUT	I/O			
103	CMDATA0	I/O			
104	CMDATA1	I/O			
105	HVDD2	P			
106	CMDATA2	I/O			
107	CMDATA3	I/O			
108	CMDATA4	I/O			
109	CMDATA5	I/O			
110	CMDATA6	I/O			
111	CMDATA7	I/O			
112	VSS	P			
113	LVDD	P			
114	GPIOD0	I/O			
115	GPIOD1	I/O			
116	CFCE2#	I/O			
117	CFCE1#	I/O			
118	CFIORD#	I/O			
119	CFIOWR#	I/O			
120	CFIREQ	I/O			
121	CFRST	I/O			
122	VSS	P			
123	HVDD1	P			
124	CFWAIT#	I/O			
125	CFSTSCHG#	I/O			
Pin No.	Pin Name	Type	Pin No.	Pin Name	Type
126	CFDEN#	I/O	136	MA6	O
127	CFDDIR	I/O	137	MA7	O
128	MA0	O	138	MA8	O
129	MA1	O	139	HVDD1	P
130	MA2	O	140	MA9	O
131	MA3	O	141	MA10	O
132	VSS	P	142	MA11	O
133	LVDD	P	143	MA12	O
134	MA4	O	144	MA13	O
135	MA5	O			

Note:

The terminal name marked with a "#" has an active low signal.

14.4. IC102

BOTTOM VIEW

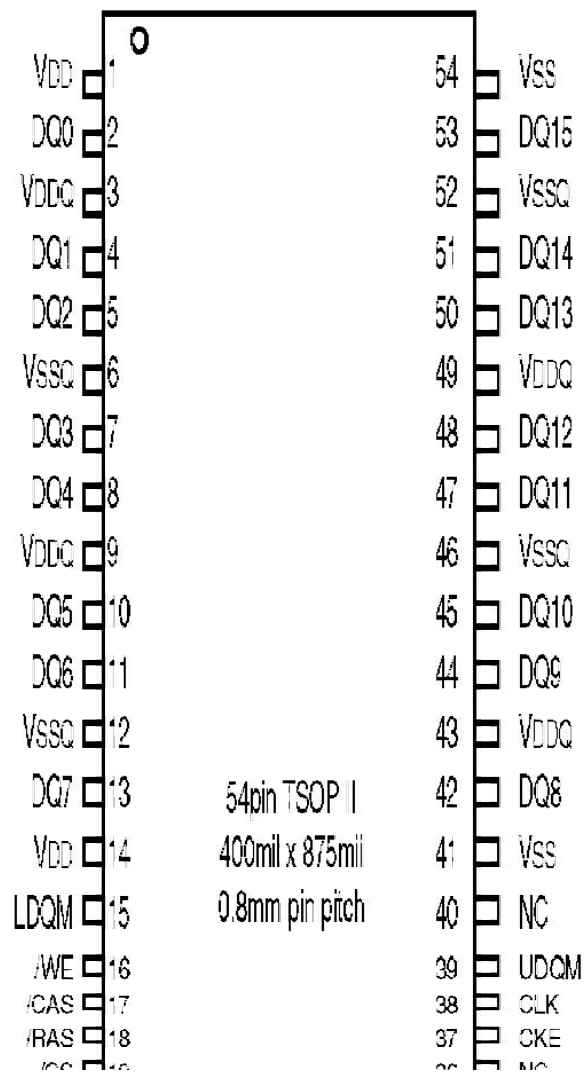


48-Ball CSP (Ball Pitch=0.8mm) Top View, Balls Facing Down (8 x 13mm for MX29LV160T/B; 6 x 8mm for MX29LV160AT/AB)

	A	B	C	D	E	F	G	H
6	A13	A12	A14	A15	A16	$\overline{\text{BYTE}}$	Q15/A-1	GND
5	A9	A8	A10	A11	Q7	Q14	Q13	Q6
4	$\overline{\text{WE}}$	$\overline{\text{RESET}}$	NC	A19	Q5	Q12	VCC	Q4
3	RY/ $\overline{\text{BY}}$	NC	A18	NC	Q2	Q10	Q11	Q3
2	A7	A17	A6	A5	Q0	Q8	Q9	Q1
1	A3	A4	A2	A1	A0	$\overline{\text{OE}}$	$\overline{\text{OE}}$	GND

SYMBOL	PIN NAME
A0~A19	Address Input
Q0~Q14	Data Input/Output
Q15/A-1	Q15(Word mode)/LSB addr(Byte mode)
$\overline{\text{CE}}$	Chip Enable Input
$\overline{\text{WE}}$	Write Enable Input
BYTE	Word/Byte Selection input
RESET	Hardware Reset Pin/Sector Protect Unlock
$\overline{\text{OE}}$	Output Enable Input
RY/ $\overline{\text{BY}}$	Ready/Busy Output

14.5. IC103

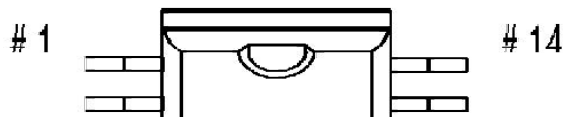


PIN	PIN NAME	DESCRIPTION
CLK	Clock	The system clock input. All other inputs are registered to the SDRAM on the rising edge of CLK.
CKE	Clock Enable	Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh.
$\overline{CS}$	Chip Select	Enables or disables all inputs except CLK, CKE and DQM.
BAC, BA1	Bank Address	Selects bank to be activated during $\overline{RAS}$ activity. Selects bank to be read/written during CAS activity.
AC - A11	Address	Row Address : RAC - RA11, Column Address : CAC - CA7. Auto-precharge flag: A10.
$\overline{RAS}$, $\overline{CAS}$, $\overline{WE}$	Row Address Strobe, Column Address Strobe, Write Enable	$\overline{RAS}$, $\overline{CAS}$ and $\overline{WE}$ define the operation. Refer function truth table for details.
LDQM, UDQM	Data Input/Output Mask	Controls output buffers in read mode and masks output data in write mode.
DQ0 - DQ15	Data Input/Output	Multiplexed data input/output pin.
VDD/VSS	Power Supply/Ground	Power supply for internal circuits and input buffers.
VDDQ/VSSQ	Data Output Power/Ground	Power supply for output buffers.
NC	No Connection	No connection.

14.6. IC104

RX - 8581 SA

SOP - 14 pin

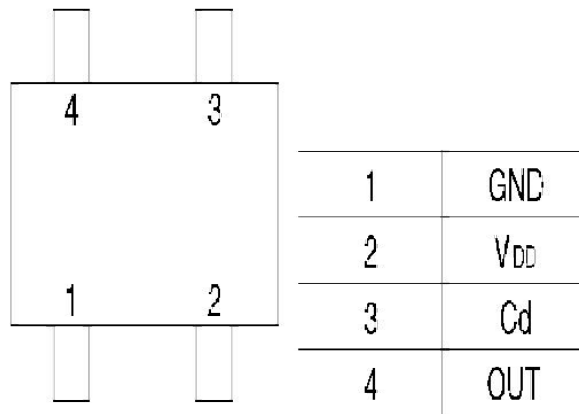


Pin No.	Pin Name	I/O	Description
2	SCL	I	Inputs I2C-BUS communications serial clock.
3	SDA	I/O	Inputs/Outputs address, data, and acknowledges bit is in synchronization with I2C-BUS communications serial clock. This terminal is an open drain on output. Connect the proper pull-up resistor depending on the signal line capacity.
14	FOUT	O	This is a C-MOS output terminal with the output controlled by FOE. In case of FOE = "H", FOUT outputs at 32.768kHz. When no output , FOUT is at the "L" level.
10	FOE	I	This is an input terminal that controls the FOUT output state. When this terminal is at the "H" level, FOUT becomes the output state. And when this terminal is at the "L" level, FOUT stops.
7	/INT	O	Outputs an interrupt signal such as the Alarm, Timer, and Time Update. This terminal is an open drain terminal.
11	VDD	-	Connects to +(positive) power supply.
11	(VDD)	-	Same potential as VDD, but do NOT connect externally. Note: RX-8581SA (SOP-14pin) does not have this terminal.
5	GND	-	Connects to ground.
4, 6, 8, 9, 12, 13	N.C.	-	Not connected to the internal IC. OPEN, or connect to GND or VDD. Note: Make sure that the 14pin~ 22pin in RX-8581NB (SON-22pin) ,which are the N.C. terminals, are mutually connected by an inner cone.

Note:

Be sure to connect a bypass capacitor of more than 0.1 F to the nearest terminal between VDD and GND.

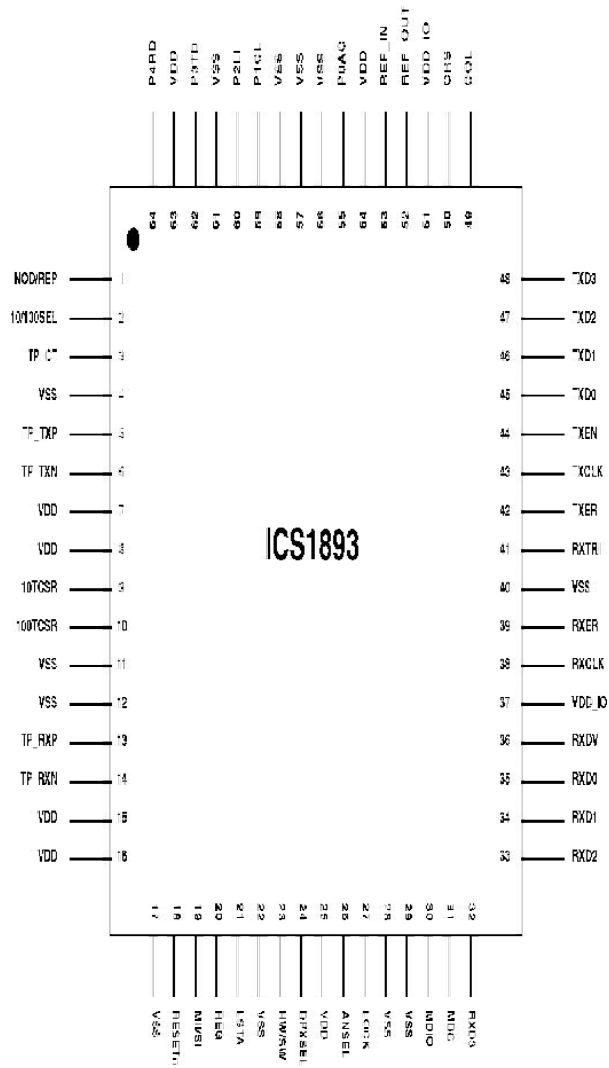
14.7. IC105



SC-82AB
(TOP VIEW)

1	GND
2	VDD
3	Cd
4	OUT

14.8. IC201

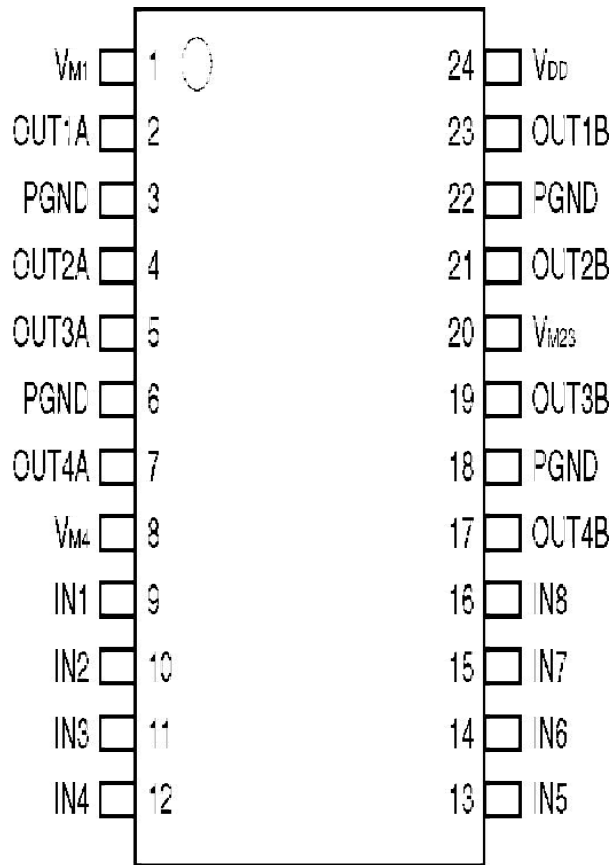


Pin No.	Pin Name	I/O	Description
14	TP_RXN	I	Twisted-Pair Receive (Data) Negative.
13	TP_RXP	I	Twisted-Pair Receive (Data) Positive.
6	TP_TXN	O	Twisted-Pair Transmit (Data) Negative.
5	TP_TXP	O	Twisted-Pair Transmit (Data) Positive.
55	P0AC	I/O	PHY (Address Bit) 0 / Activity LED.
59	P1CL	I/O	PHY (Address Bit) 1 / Collision LED.
60	P2LI	I/O	PHY (Address Bit) 2 / Link Integrity LED.
62	P3TD	I/O	PHY (Address Bit) 3 / Transmit Data LED.
64	P4RD	I/O	PHY (Address Bit) 4 / Receive Data LED.
2	10/100SEL	I/O	10Base-T / 100Base-TX Select.
9	10TCSR	I	10M Transmit Current Set Resistor.
10	100TCSR	I	100M Transmit Current Set Resistor.
26	ANSEL	I	Auto-Negotiation Select.
24	DPXSEL	I/O	Half-Duplex / Full-Duplex Select.
23	HW/SW	I	Hardware/Software (Select).
27	LOCK	O	(Stream Cipher) Lock (Acquired).
21	LSTA	O	Link Status.
19	MII/SI	I	Media Independent Interface / Stream Interface (Select).
1	NOD/REP	I	Node/Repeater (Select).
53	REF_IN	I	(Frequency) Reference Input.
52	REF_OUT	I	(Frequency) Reference Output.
18	RESETn	I	(System) Reset (Active Low).
49	COL	O	Collision (Detect).
50	CRS	O	Carrier Sense.
31	MDC	I	Management Data Clock.
30	MDIO	I/O	Management Data Input/Output.
38	RXCLK	O	Receive Clock.
35 34 33 32	RXD0 RXD1 RXD2 RXD3	I	Receive Data 0-3.
36	RXDV	O	Receive Data Valid.
39	RXER	O	Receive Error.
41	RXTRI	I	Receive (Interface), Tri-State.
43	TXCLK	O	Transmit Clock.
45 46 47 48	TXD0 TXD1 TXD2 TXD3	I	Transmit Data 0-3.
44	TXEN	I	Transmit Enable.
42	TXER	I	Transmit Error.

Pin No.	MII Pin Name	100M Symbol Pin Name	I/O	Description
49	COL	-	NC	Collision (Detect).
50	CRS	SCRS	O	Symbol Carrier Sense.
31	MDC	MDC	I	Management Data Clock.
30	MDIO	MDIO	I/O	Management Data Input/Output.
38	RXCLK	SRCLK	O	(Symbol) Receive Clock.
35 34 33 32	RXD0 RXD1 RXD2 RXD3	SRD0 SRD1 SRD2 SRD3	O	Symbol Receive Data 0-3.
36	RXDV	-	NC	Receive Data Valid.
39	RXER	SRD4	O	Symbol Receive Data 4.
41	RXTRI		I	Receive (Interface), Tri-State.
43	TXCLK	STCLK	O	Symbol Transmit Clock.
45 46 47 48	TXD0-3	STD0 STD1 STD2 STD3	I	Symbol Transmit Data 0-3.
44	TXEN	-	NC	Transmit Enable.
42	TXER	STD4	I	Symbol Transmit Data 4.
49	COL	10COL	O	10M (Serial Interface) Collision (Detect).
50	CRS	10CRS	O	10M (Serial Interface) Carrier Sense.
31	MDC	MDC	I	Management Data Clock.
30	MDIO	MDIO	I/O	Management Data Input/Output.
38	RXCLK	10RCLK	O	10M Receive Clock.
35	RXD0	10RD	-	10M (Serial Interface) Receive Data 0.
34 33 32	RXD1 RXD2 RXD3	-	NC	Receive Data 1-3.
36	RXDV	10RXDV	O	10M (Serial Interface) Receive Data Valid.
39	RXER	-	NC	Receive Error.
41	RXTRI		I	Receive (Interface), Tri-State.
43	TXCLK	10TCLK	O	10M (Serial Interface) Transmit Clock.
45	TXD0	10TD	I	10M (Serial Interface) Transmit Data.
46 47 48	TXD1 TXD2 TXD3	-	NC	Transmit Data 1-3.
44	TXEN	10TXEN	I	10M (Serial Interface) Transmit Enable.
42	TXER	-	NC	Transmit Error.

Pin No.	Pin Name	I/O	Description
20	REG	I	

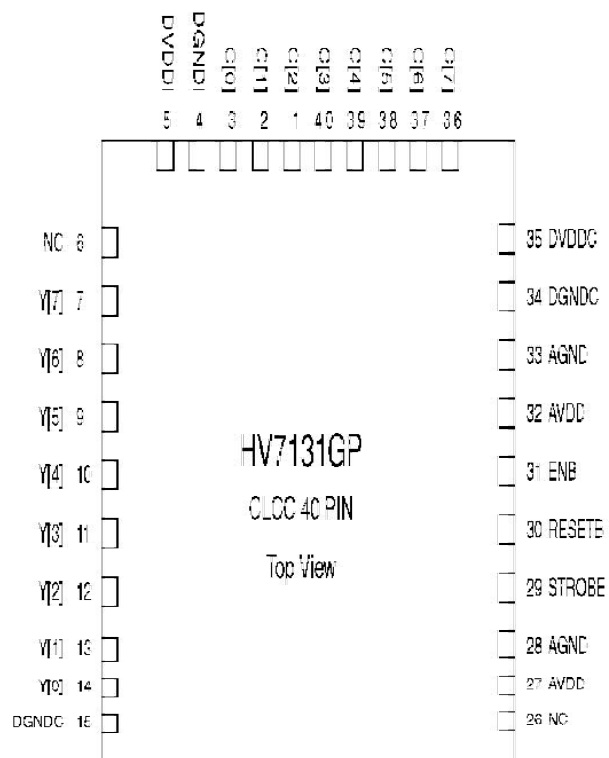
14.9. IC402



Pin No.	Pin Name	Description
1	VM1	1ch motor power supply voltage input terminal
2	OUT1A	H-bridge output terminal (1A)
3	PGND	GND terminal
4	OUT2A	H-bridge output terminal (2A)
5	OUT3A	H-bridge output terminal (2A)
6	PGND	GND terminal
7	OUT4A	H-bridge output terminal (4A)
8	VM4	4ch motor power supply voltage input terminal
9	IN1	Control input terminal (H-bridge1)
10	IN2	Control input terminal (H-bridge1)
11	IN3	Control input terminal (H-bridge2)
12	IN4	Control input terminal (H-bridge2)
13	IN5	Control input terminal (H-bridge3)
14	IN6	Control input terminal (H-bridge3)
15	IN7	Control input terminal (H-bridge4)
16	IN8	Control input terminal (H-bridge4)
17	OUT4B	H-bridge output terminal (4B)
18	PGND	GND terminal
19	OUT3B	H-bridge output terminal (3B)
20	VM23	2, 3ch motor power supply voltage input terminal

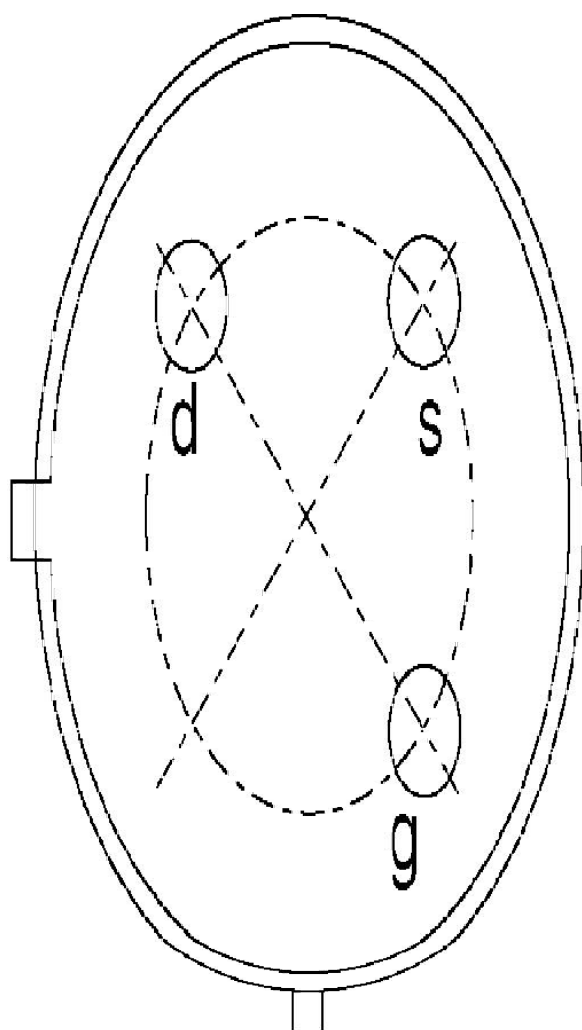
Pin No.	Pin Name	Description
21	OUT2B	H-bridge output terminal (2B)
22	PGND	GND terminal
23	OUT1B	H-bridge output terminal (1B)
24	VDD	Controller power supply voltage input terminal

14.10. IC701



Pin No.	Type	Symbol	Description
1-3	B	C[2:0]	Video Chrominance Data[2:0]
4	G	DGNDI	Digital Ground for I/O Buffer
5	P	DVDDI	Digital Power for I/O Buffer
6	N	NC	No Connection
7-14	O	Y[7:0]	Video Luminance Data[7:0]
15	G	DGNDC	Ground for Internal Digital Block
16	P	DVDDC	Power for Internal Digital Block
17	G	DGNDI	Digital Ground for I/O Buffer
18	I	MCLK	Master Input Clock
19	O	VCLK	Video Output Clock
20	O	HSYNC	Video Horizontal Line Synchronization signal. Image data is valid, when HSYNC is high.
21	O	VSYN	Video Frame Synchronization signal. VSYNC is active at start of image data frame.
22	B	SDA	I2C Standard data I/O port
23	I	SCK	I2C Clock Input
24	G	DGNDI	Digital Ground for I/O Buffer
25	P	DVDDI	Digital Power for I/O Buffer
26	N	NC	No Connection
27	P	AVDD	Power for Analog Block
28	G	AGND	Ground for Analog Block
29	O	STROBE	Strobe Signal Output
30	I	RESETB	Sensor Reset, Low Active
31	I	ENB	Sensor sleep mode is controlled externally by this pin when sleep mode register bit SCTRB[4] is low. ENB low : sleep mode, ENB high : normal mode
32	P	AVDD	Power for Analog Block
33	G	AGND	Ground for Analog Block
34	G	DGNDC	Ground for Internal Digital Block
35	P	DVDDC	Power for Internal Digital Block
36-40	B	C[7:3]	Video Chrominance Data[7:3]

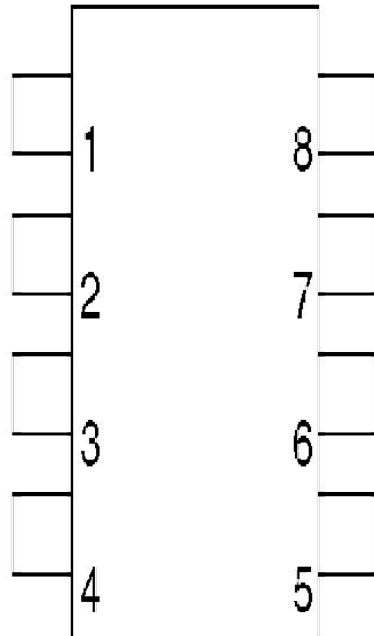
14.11. IC801



Pin	Description
d (Drain)	Power, Drain tarminal
s (Source)	Source output terminal
g (Ground)	Ground terminal

14.12. IC802

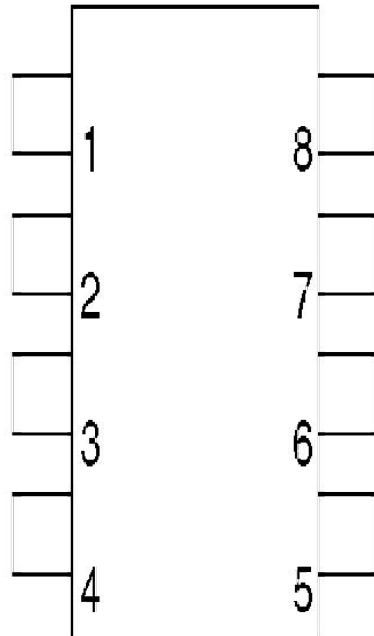
D, M, V Type (Top View)



Pin No.	Pin Name	Description
1	A	OUTPUT
2	A	-INPUT
3	A	+INPUT
4	GND	
5	B	+INPUT
6	B	-INPUT
7	B	OUTPUT
8	V+	

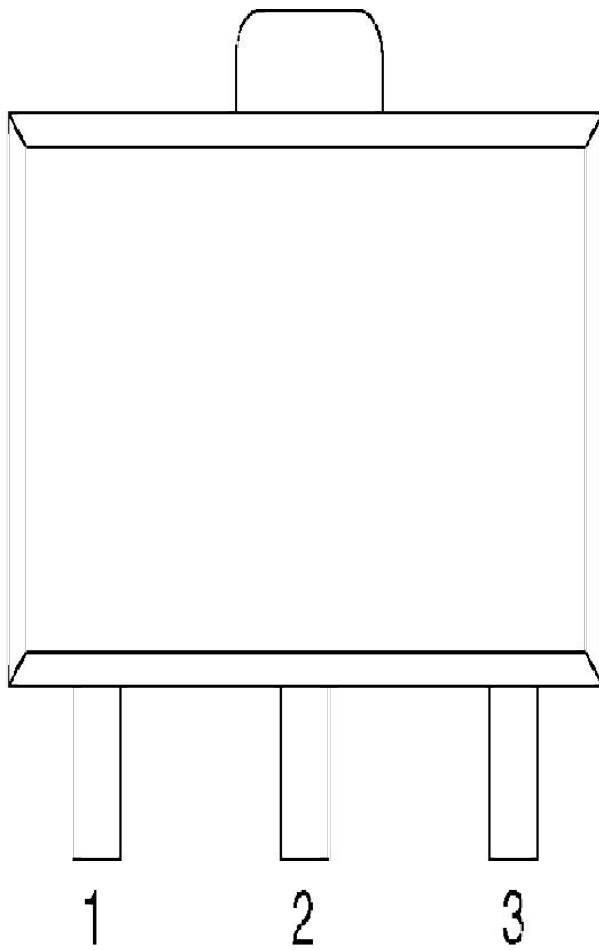
14.13. IC803

D, M, V Type (Top View)



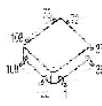
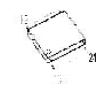
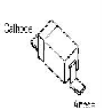
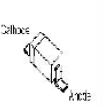
Pin No.	Pin Name	Description
1	A	OUTPUT
2	A	-INPUT
3	A	+INPUT
4	GND	
5	B	+INPUT
6	B	-INPUT
7	B	OUTPUT
8	V+	

14.14. IC804



Pin No.	Pin Name	Function
1	VOUT	Regulated voltage Output
2	VSS	Ground
3	VIN	Supply Voltage Input

15. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 C2DEYK00004	 C3AEPG000134	 C1232C002444	 C0EE00000291	 C13B30001525
 C0GBEC000017	 C0DBAG2000146 C0GBAC000034 C0GBAC000030	 B1DHCD000016 C0CBAB000119	 L2CD00000021	 POWINW2934V C0EEBAC00014
 POWDTA1-3TU PQWDT0143E	 MA7412WK MAZ831CL	 MA736	 MA111	 B0AGB0000027

16. HOW TO REPLACE A FLAT PACKAGE IC

16.1. PREPARATION

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of 700°F ± 20°F (370°C ± 10°C)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

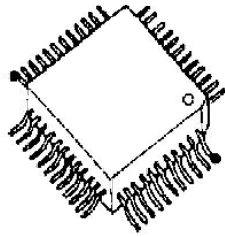
Recommended Flux: Specific Gravity 0.82.

Type RMA (lower residue, non-cleaning type)

Note: See [ABOUT LEAD FREE SOLDER \(PbF: Pb free\)](#) ().

16.2. PROCEDURE

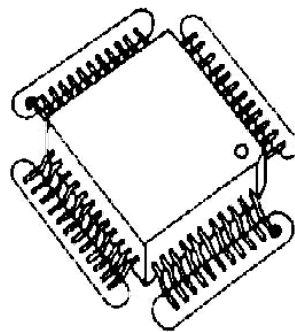
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



● - - - - - Temporary soldering point.

Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.



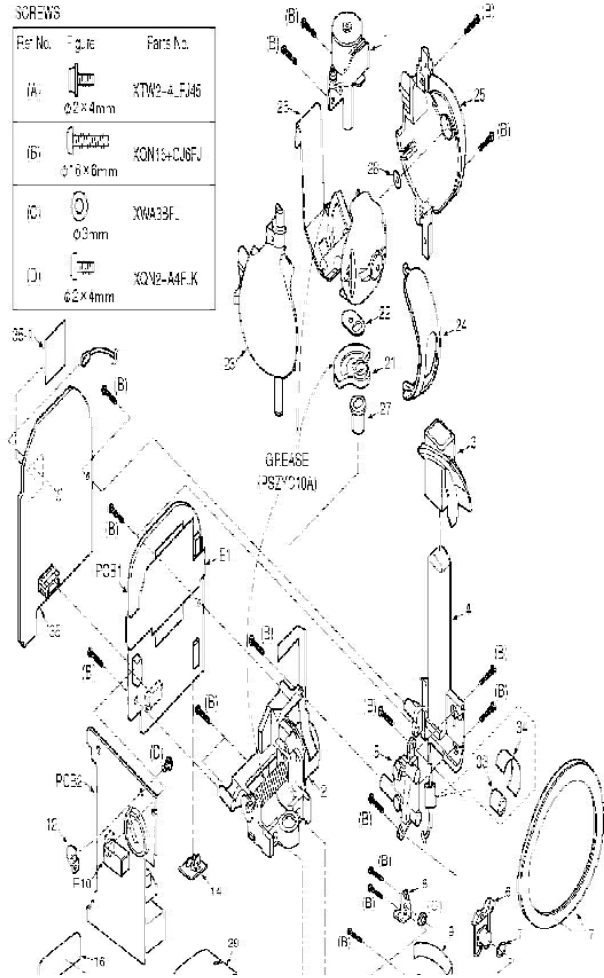
○ - - - - - Flux

3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.

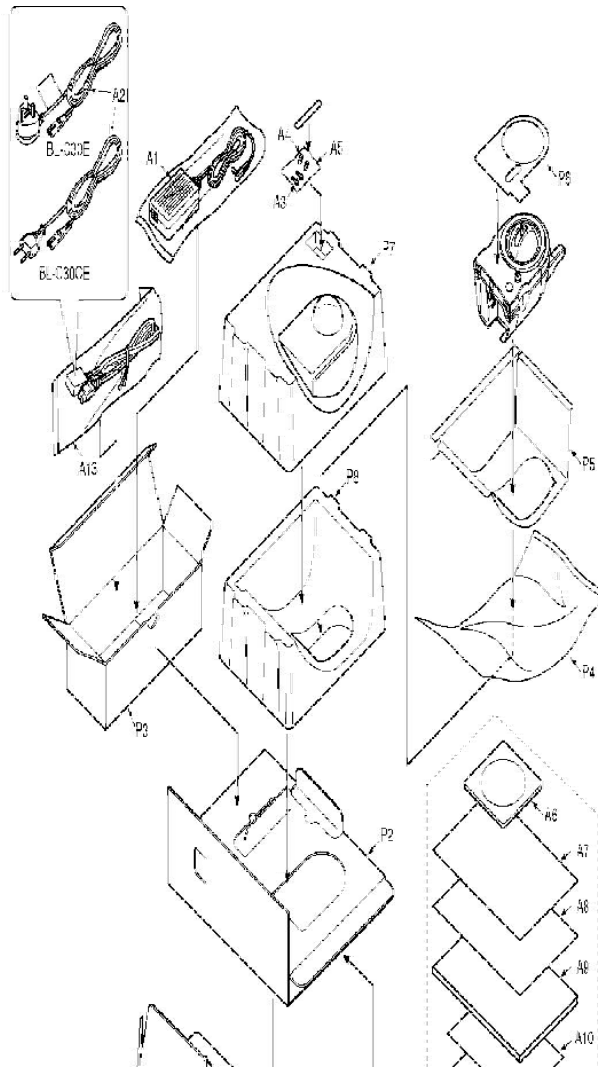
16.3. REMOVING SOLDER FROM BETWEEN PINS

1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.

17. CABINET AND ELECTRICAL PARTS LOCATION



18. ACCESSORIES AND PACKING MATERIALS



19. REPLACEMENT PARTS LIST

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws

governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the  mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example : ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

Unless otherwise specified;

All resistors are in ohms (Ω), k=1000 , M=1000k

All capacitors are in MICRO FARADS (μ F), p= (pF)

*Type & Wattage of Resistor

Type		
ERC:Solid	ERX:Metal Film	PQRD:Carbon
ERD:Carbon	ERG:Metal Oxide	PQRQ:Fuse
PQDR:Chip	ERC:Metal Film	ERF:Wire Wound

Wattage		
10 1/4 1/8 1/4W 1/2W 3/4W 1W 2W 3W 5W 10W 15W 20W 25W 30W 35W 40W 45W 50W 60W 70W 75W 80W 90W 100W 125W 150W 175W 200W 225W 250W 275W 300W 325W 350W 375W 400W 450W 500W 550W 600W 650W 700W 750W 800W 850W 900W 950W 1000W 1200W 1400W 1600W 1800W 2000W 2200W 2400W 2600W 2800W 3000W 3200W 3400W 3600W 3800W 4000W 4200W 4400W 4600W 4800W 5000W 5200W 5400W 5600W 5800W 6000W 6200W 6400W 6600W 6800W 7000W 7200W 7400W 7600W 7800W 8000W 8200W 8400W 8600W 8800W 9000W 9200W 9400W 9600W 9800W 10000W	1/4W 1/2W 3/4W 1W 2W 3W 5W 10W 15W 20W 25W 30W 35W 40W 45W 50W 60W 70W 75W 80W 90W 100W 125W 150W 175W 200W 225W 250W 275W 300W 325W 350W 375W 400W 450W 500W 550W 600W 650W 700W 750W 800W 850W 900W 950W 1000W 1200W 1400W 1600W 1800W 2000W 2200W 2400W 2600W 2800W 3000W 3200W 3400W 3600W 3800W 4000W 4200W 4400W 4600W 4800W 5000W 5200W 5400W 5600W 5800W 6000W 6200W 6400W 6600W 6800W 7000W 7200W 7400W 7600W 7800W 8000W 8200W 8400W 8600W 8800W 9000W 9200W 9400W 9600W 9800W 10000W	1/4W 1/2W 3/4W 1W 2W 3W 5W 10W 15W 20W 25W 30W 35W 40W 45W 50W 60W 70W 75W 80W 90W 100W 125W 150W 175W 200W 225W 250W 275W 300W 325W 350W 375W 400W 450W 500W 550W 600W 650W 700W 750W 800W 850W 900W 950W 1000W 1200W 1400W 1600W 1800W 2000W 2200W 2400W 2600W 2800W 3000W 3200W 3400W 3600W 3800W 4000W 4200W 4400W 4600W 4800W 5000W 5200W 5400W 5600W 5800W 6000W 6200W 6400W 6600W 6800W 7000W 7200W 7400W 7600W 7800W 8000W 8200W 8400W 8600W 8800W 9000W 9200W 9400W 9600W 9800W 10000W

ECQ Type	ECQ Type	ECQ Type	ECQ Type	ECQ Type
1H 50V	0E 50V	0F 2.15V	0J 6.3V	1V 25V
1A 100V	1A 100V	1A 100V	1A 100V	1A 100V
2E 1250V	2E 1250V	1V 100V	1C 100V	1C 100V
2H 1500V	2H 1500V	2H 1500V	2H 1500V	2H 1500V

19.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	PSWQ1C10A	TILT MOTOR UNIT	ABS-HB
2	PSWQC30N	PAN MOTOR UNIT	ABS-HB
3	PSHR1338Y	ANTENNA COVER	ABS-V0
4	PSSA1032Z	ANTENNA	ABS-V0
5	PSHR1337Z	SPACER,BOARD SUPPORT	ABS-V0
6	PSBC1042Z1	LENS BUTTON	ABS-HB
7	PSHX1232Z	SPACER	
8	PSMH1273Z	ANGLE	
9	PSJE1042Z	LEAD WIRE,SUB FLAT CABLE	
10	PSMH1275Z	ANGLE	
11	PSKM1117V1	CABINET BODY	ABS-V0
12	PSMH1291Z	ANGLE	
13	PSKF1087Y1	CABINET COVER	ABS-V0
14	PSBD1017Z1	KNOB,SLIDE	
15	PSHA1014Z	RUBBER PARTS,LEGS	
16	PSGT2655Z	NAME PLATE(FOR BL-C30CE)	
16	PSGT2656Z	NAME PLATE(FOR BL-C30E)	
17	PSME1009Z	COVER	
18	PSQT2101Z	JACK LABEL	
19	PSQT2141Z	CE LABEL	
20	PSMX1027Z	INSULATOR	
21	PSHR1323Y	GUIDE,PAN GEAR	ABS-HB
22	PSHX1236Z	SPACER	
23	PSKE1074Z1	EYE LEFT COVER	ABS-V0
24	PSKV1043Z1	EYE CENTER COVER	ABS-V0
25	PSKE1075Z1	EYE RIGHT COVER	ABS-V0
26	PSLP1267Z	LENS UNIT	ABS-HB
27	PSHR1335Z	SPACER	ABS-HB
28	PSNPB025050	SPACER	
29	PSMY1027Z	HEAT SINK	
30	PSMY1028Z	HEAT SINK	
31	PSMH1294Z	METAL PARTS	
32	PSMX1026Z	INSULATOR	
33	J0KA00000072	FILTER.CORE	
34	PSHS1054Z	TAPE,FILTER	
35	PSWP4C30CE	RF UNIT	
35-1	PSMC1119Z	MAGNETIC SHIELD	

19.2. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV202X	AC ADAPTOR	
A2	PFJA02A006Z	POWER CORD(FOR BL-C30CE)	
A2	PSJA1106Z	POWER CORD(FOR BL-C30E)	
A3	PQHE5004Y	SCREW	
A4	XWG35FJ	WASHER	
A5	XZB05X08A03	PROTECTION COVER(FOR SCREWS)	
A6	PSQX3601ZCD	INSTRUCTION BOOK,CD-ROM	
A7	PSQW2348Z	LEAFLET(FOR BL-C30CE)	
A7	PSQW2274Y	LEAFLET(FOR BL-C30E)	
A8	PSQW2314Z	LEAFLET(FOR BL-C30CE)	
A9	PSQW2284Z	LEAFLET	
A10	PSQW2227Z	LEAFLET(FOR BL-C30CE)	
A11	PSQX3599Z	INSTRUCTION BOOK	
A12	PSQX3600Z	INSTRUCTION BOOK	
A13	XZB20X30A05	PROTECTION COVER(FOR CD-ROM etc.)	
P1	PSPK2315Z	GIFT BOX	
P2	PSPD1270Z	CUSHION	
P3	PSPN1174Z	ACCESSORY BOX	
P4	PSPH1012Z	PACKING SHEET	
P5	PSPE1016Z	CUSHION	
P6	PSHX1242Z	CABINET PROTECT COVER	
P7	PSPE1011Z	CUSHION	
P8	PSPE1012Z	CUSHION	

19.3. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PSWP1C30CE	MAIN BOARD ASS'Y (RTL)	
		(ICS)	
IC51	C0CBCAC00084	IC	
IC52	C0CBCAC00060	IC	
IC62	C0DBAGZ00046	IC	
IC101	C2DBYK000004	IC	
IC102	PSWP1C30CE	There is no parts supply of only IC102. Please order PCB1.	
IC103	C3ABPG000134	IC	
IC104	C1ZBZ0002444	IC	
IC105	C0EBE0000231	IC	
IC201	C1CB00001919	IC	
IC402	C0GBE0000017	IC	S
		(TRANSISTORS)	
IC61	B1DHCD000018	TRANSISTOR(SI)	
Q61	PQVTDTA143TU	TRANSISTOR(SI)	S
Q201	PQVTDTA143TU	TRANSISTOR(SI)	S
Q202	PQVTDTA143TU	TRANSISTOR(SI)	S
Q401	PQVTDTA143TU	TRANSISTOR(SI)	S
Q402	PQVTDTA143TU	TRANSISTOR(SI)	S
		(DIODES)	
D61	MA736	DIODE(SI)	S
D101	MA741WK	DIODE(SI)	S
		(CAPACITORS)	
C102	ECJ0EC1H101J	100p	

Ref. No.	Part No.	Part Name & Description	Remarks
C103	ECJ0EF1C104Z	0.1	
C104	ECJ0EF1C104Z	0.1	
C105	ECJ0EF1C104Z	0.1	
C106	ECJ0EF1C104Z	0.1	
C107	ECJ0EF1C104Z	0.1	
C108	ECJ0EC1H101J	100p	
C109	ECJ0EF1C104Z	0.1	
C110	ECJ0EC1H101J	100p	
C111	ECJ0EF1C104Z	0.1	
C112	ECJ0EC1H101J	100p	
C113	ECJ0EF1C104Z	0.1	
C115	ECJ0EC1H101J	100p	
C116	ECJ0EF1C104Z	0.1	
C117	ECJ0EF1C104Z	0.1	
C118	ECJ0EF1C104Z	0.1	
C119	ECJ0EC1H101J	100p	
C120	ECJ0EF1C104Z	0.1	
C121	ECJ0EC1H101J	100p	
C122	ECJ0EF1C104Z	0.1	
C124	ECJ0EC1H101J	100p	
C125	ECJ0EF1C104Z	0.1	
C126	ECJ0EC1H101J	100p	
C127	ECJ0EF1C104Z	0.1	
C128	F1J0J1060006	10	
C129	ECJ0EC1H101J	100p	
C130	ECJ0EF1C104Z	0.1	
C131	ECJ0EC1H101J	100p	
C132	ECJ0EF1C104Z	0.1	
C133	ECJ0EC1H101J	100p	
C134	ECJ0EF1C104Z	0.1	
C135	ECJ0EC1H101J	100p	
C136	ECJ0EF1C104Z	0.1	
C137	ECJ0EC1H101J	100p	
C138	ECJ0EF1C104Z	0.1	
C139	ECJ0EC1H101J	100p	
C140	ECJ0EF1C104Z	0.1	
C141	ECJ0EC1H101J	100p	
C142	ECJ0EF1C104Z	0.1	
C143	F1J0J1060006	10	
C144	ECJ0EC1H101J	100p	
C145	ECJ0EF1C104Z	0.1	
C146	F1J0J1060006	10	
C147	ECJ0EC1H101J	100p	
C148	ECJ0EF1C104Z	0.1	
C149	ECUV1A105ZfV	1	
C150	ECJ0EF1C104Z	0.1	
C151	ECJ0EC1H330J	33p	
C152	ECUV1C224ZfV	0.22	
C154	ECJ0EF1C104Z	0.1	
C155	ECJ0EC1H121J	120p	
C156	ECJ0EF1C104Z	0.1	
C157	ECJ0EF1C104Z	0.1	
C158	ECJ0EC1H121J	120p	
C159	ECJ0EC1H121J	120p	
C160	ECJ0EC1H121J	120p	
C161	ECJ0EC1H121J	120p	
C162	ECJ0EC1H121J	120p	

Ref. No.	Part No.	Part Name & Description	Remarks
C163	ECJ0EC1H121J	120p	
C164	ECJ0EC1H121J	120p	
C165	ECJ0EC1H121J	120p	
C166	ECJ0EC1H121J	120p	
C167	ECJ0EC1H221J	220p	
C202	ECJ0EC1H101J	100p	
C203	ECJ0EC1H101J	100p	
C204	ECJ0EC1H101J	100p	
C205	ECJ0EC1H101J	100p	
C206	ECJ0EC1H101J	100p	
C207	ECJ0EC1H101J	100p	
C208	ECJ0EF1C104Z	0.1	
C209	ECJ0EC1H270J	27p	
C210	ECJ0EC1H330J	33p	
C211	ECJ0EF1C104Z	0.1	
C212	ECJ0EF1C104Z	0.1	
C213	ECJ0EF1C104Z	0.1	
C214	ECJ0EF1C104Z	0.1	
C215	ECJ0EF1C104Z	0.1	
C216	ECJ0EF1C104Z	0.1	
C217	ECJ0EF1C104Z	0.1	
C218	ECJ0EB1H102K	0.001	
C219	ECJ0EC1H040C	4p	
C221	ECJ0EF1C104Z	0.1	
C222	ECJ0EC1H221J	220p	
C223	ECJ0EF1C104Z	0.1	
C402	ECJ0EF1C104Z	0.1	
C404	ECJ0EF1C104Z	0.1	
C414	ECJ0EF1C104Z	0.1	
C415	ECJ0EF1C104Z	0.1	
C416	ECJ0EF1C104Z	0.1	
C417	F1J0J1060006	10	
C418	F1J0J1060006	10	
C419	ECJ0EC1H330J	33p	
C420	ECJ0EF1C104Z	0.1	
C421	ECJ0EC1H101J	100p	
C422	ECJ0EC1H150J	15p	
C51	ECUV1A105ZV	1	
C52	ECUV1A105ZV	1	
C53	ECJ0EF1C104Z	0.1	
C54	ECJ0EF1C104Z	0.1	
C56	ECJ0EF1C104Z	0.1	
C57	ECJ0EB1H102K	0.001	
C61	PFCX1EY106ZF	10	S
C62	ECUV1E104ZV	0.1	
C64	ECUV1C224ZV	0.22	
C65	F4Z0J4760001	47	
C66	ECUV1E104ZV	0.1	
C67	F1K0J1060020	10	
		(CONNECTORS)	
CN51	K1KB20B00045	CONNECTOR,20P	
CN101	PQJS15A94Z	CONNECTOR,15P	S
CN201	K1KA20A00303	CONNECTOR,20P	
CN401	K1MN04B00042	CONNECTOR,4P	
CN402	K1MN28B00058	CONNECTOR,28P	



Ref. No.	Part No.	Part Name & Description	Remarks
		(COILS AND CERAMIC FILTER)	
L61	G1A220GA0005	COIL	
L101	G1C100K00031	COIL	
L102	J0JCC0000368	CERAMIC FILTER	
L103	EXC28BA221U	CERAMIC FILTER	
L104	EXC28BA221U	CERAMIC FILTER	
L105	EXC28BA221U	CERAMIC FILTER	
L106	EXC28BA221U	CERAMIC FILTER	
L107	J0JCC0000368	CERAMIC FILTER	
L108	J0JCC0000368	CERAMIC FILTER	
L109	J0JCC0000368	CERAMIC FILTER	
L110	J0JCC0000368	CERAMIC FILTER	
L111	J0JCC0000368	CERAMIC FILTER	
L112	J0JCC0000368	CERAMIC FILTER	
L202	G1CR12J00003	COIL	
L203	J0JDC0000076	CERAMIC FILTER	
L204	J0JDC0000076	CERAMIC FILTER	
L404	J0JCC0000192	COIL	
L405	J0JCC0000192	COIL	
L406	J0JCC0000192	COIL	
L407	J0JCC0000192	COIL	
L408	J0JCC0000149	COIL	
L409	J0JCC0000149	COIL	
L410	J0JCC0000149	COIL	
L411	J0JCC0000149	COIL	
		(RESISITORS)	
R61	ERJ3GEYJ100	10	
R62	ERJ3GEYJ100	10	
R63	ERJ3GEYJ244	240k	
R64	ERJ6GEY0R00	0	
R106	ERJ2GEJ470	47	
R107	ERJ2GEJ470	47	
R108	ERJ2GEJ470	47	
R109	ERJ2GEJ470	47	
R111	ERJ2GEJ470	47	
R112	ERJ2GEJ470	47	
R113	ERJ2GEJ470	47	
R115	ERJ2GEJ470	47	
R116	ERJ2GEJ470	47	
R117	ERJ2GEJ470	47	
R118	ERJ2GEJ470	47	
R121	ERJ2GEJ470	47	
R122	ERJ2GEJ470	47	
R123	ERJ2GEJ103	10k	
R124	ERJ2GE0R00	0	
R125	ERJ2GEJ103	10k	
R127	ERJ2GEJ221	220	
R128	ERJ2GEJ103	10k	
R130	ERJ2GEJ221	220	
R131	ERJ2GEJ103	10k	
R132	ERJ2GEJ472X	4.7k	
R133	ERJ2GEJ472X	4.7k	
R134	ERJ2GEJ103	10k	
R135	ERJ2GEJ471	470	
R136	ERJ2GEJ103	10k	
R137	ERJ2GEJ102	1k	

Ref. No.	Part No.	Part Name & Description	Remarks
R138	ERJ2GEJ103	10k	
R139	ERJ2GEJ103	10k	
R148	ERJ2GEJ103	10k	
R149	ERJ2GEJ103	10k	
R150	ERJ2GEJ103	10k	
R151	ERJ2GEJ103	10k	
R152	ERJ2GEJ103	10k	
R153	ERJ2GEJ103	10k	
R154	ERJ2GEJ103	10k	
R155	ERJ2GEJ103	10k	
R157	ERJ2GEJ470	47	
R160	ERJ2GEJ103	10k	
R161	ERJ2GEJ103	10k	
R162	ERJ2GE0R00	0	
R163	ERJ2GEJ470	47	
R165	ERJ2GEJ470	47	
R201	ERJ2GEJ470	47	
R202	ERJ2GEJ470	47	
R203	ERJ2GEJ470	47	
R204	ERJ2GEJ470	47	
R205	ERJ2GEJ470	47	
R206	ERJ2GEJ470	47	
R207	ERJ2GEJ102	1k	
R209	ERJ2GEJ103	10k	
R211	ERJ2GEJ103	10k	
R212	ERJ2GEJ103	10k	
R213	ERJ2GEJ103	10k	
R214	ERJ2GEJ103	10k	
R215	ERJ2GEJ103	10k	
R217	ERJ3EKF1002	10k	
R218	ERJ3EKF1541	1.54k	
R219	ERJ3EKF2001	2k	
R220	ERJ3EKF56R2	56.2	
R221	ERJ3EKF56R2	56.2	
R224	ERJ2GE0R00	0	
R225	ERJ3EKF51R1	51.1	
R226	ERJ3EKF51R1	51.1	
R401	ERJ2GEJ330	33	
R402	ERJ2GE0R00	0	
R404	ERJ2GEJ103	10k	
		(COMPONENTS PARTS)	
RA106	D1H84704A024	RESISTOR ARRAY	
RA107	D1H81034A024	RESISTOR ARRAY	
RA108	D1H84704A024	RESISTOR ARRAY	
RA109	D1H84704A024	RESISTOR ARRAY	
RA110	D1H84704A024	RESISTOR ARRAY	
RA111	D1H84704A024	RESISTOR ARRAY	
RA114	D1H84704A024	RESISTOR ARRAY	
RA201	D1H84704A024	RESISTOR ARRAY	
RA401	D1H82214A024	RESISTOR ARRAY	
RA402	D1H82214A024	RESISTOR ARRAY	
		(SWITCH)	
SW201	K0D122A00098	SWITCH	
SW202	K0D122A00098	SWITCH	

Ref. No.	Part No.	Part Name & Description	Remarks
		(CRYSTAL OSCILLATOR)	
X201	H0J250500028	CRYSTAL OSCILLATOR	
		(OTHERS)	
E1	PSHX1228Z	PLASTIC PARTS	

19.4. I/O BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PSWP2C30CE	I/O BOARD ASS'Y (RTL)	
		(ICS)	
IC2	C0DBAGZ00046	IC	
		(TRANSISTORS)	
IC1	B1DHCD000018	TRANSISTOR(SI)	
Q1	PQVTDTC143E	TRANSISTOR(SI)	S
		(DIODES)	
D1	MA736	DIODE(SI)	S
D2	MA3082	DIODE(SI)	S
D3	MA736	DIODE(SI)	S
D4	MA111	DIODE(SI)	S
		(BATTERY)	
BAT1	CR-1632/1HF	LITHIUM BATTERY	
		(CAPACITORS)	
C1	F2A1C2220066	2200	
C2	PFCX1EY106ZF	10	S
C4	ECUV1A105ZFV	1	
C5	ECUV1C224ZFV	0.22	
C6	F4Z0J4760001	47	
C7	ECUV1E104ZFV	0.1	
C8	ECJ3YB0J106K	10	
C11	ECUV1E104ZFV	0.1	
C12	ECUV1E104ZFV	0.1	
C13	ECUV1E104ZFV	0.1	
C14	ECUV1H102KBV	0.001	
C15	ECUV1E104ZFV	0.1	
C16	ECJ0EF1C104Z	0.1	
C17	ECUV1A105ZFV	1	
		(JACKS AND CONNECTORS)	
CN1	K2ED2A000001	DC JACK	
CN2	K2LC108A0007	MODULAR JACK	
CN3	K1KA20A00317	CONNECTOR,20P	
		(COILS)	
L1	G0B150G00002	COIL	
L2	G1C6R8Z00005	COIL	
L3	G1C220ZA0011	COIL	
L4	G1C100M00027	COIL	
		(RESISITORS)	

Ref. No.	Part No.	Part Name & Description	Remarks
R1	ERJ3GEYJ103	10k	
R2	ERJ3GEYJ100	10	
R3	ERJ3GEYJ244	240k	
R4	ERJ3GEYJ122	1.2k	
R5	ERJ3GEYJ750	75	
R6	ERJ3GEYJ750	75	
R8	ERJ3GEYJ750	75	
R9	ERJ3GEYJ750	75	
R10	ERJ3GEYJ100	10	
R12	ERJ2GEJ101	100	
R13	ERJ2GEJ272	2.7k	
		(VARISTORS)	
SA1	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA2	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA3	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA4	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA5	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
		(TRANSFORMER)	
T1	G5B1C0000011	TRANSFORMER	
		(OTHERS)	
E10	PSHG1265Z	RUBBER PARTS	

19.5. SUB BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
				C812	ECJ0EB1A104K	0.1	
				C814	ECJ3YF1A106Z	10	
				C815	ECJ0EF1C104Z	0.1	
				C816	ECUV1E104ZFB	0.1	
				C818	ECJ3YF1E105Z	1	
				C819	ECJ0EB1H102K	0.001	
PCB3	PSWP3BLC10N	SUB BOARD ASS'Y (RTL)				(CONNECTOR)	
		(ICS)		CN801	PQJS15A94Z	CONNECTOR,15P	S
IC801	L2CD00000021	PHOTO ELECTRIC TRANSDUCER					
IC802	C0ABBA000025	IC				(COIL)	
IC803	C0BBBA000044	IC		L801	G1C100K00031	COIL	
IC804	C0CBABC00119	IC					
						(RESISTORS)	
		(TRANSISTORS)		R801	ERJ2GEJ473	47k	
Q801	PQVTDTC143E	TRANSISTOR(SI)	S	R802	ERJ2RHD103	10k	
Q802	PQVTDTC143E	TRANSISTOR(SI)	S	R803	ERJ2GE0R00	0	
				R804	D1BA1504A015	1.5M	
		(DIODES)		R805	ERJ2RHD103	10k	
D801	MA111	DIODE(SI)	S	R806	ERJ2GEJ104	100k	
LED801	B3AGB0000027	LED		R807	D1BA1504A015	1.5M	
				R808	ERJ2GEYJ474	470k	S
		(CAPACITORS)		R809	ERJ2GEJ244	240k	
C801	ECJ0EB1H102K	0.001		R810	ERJ3GEYJ560	56	
C802	ECJ0EB1C223K	0.022		R811	ERJ3GEYJ750	75	
C803	ECJ3YB0J106K	10		R812	ERJ2RKF3303	330k	
C804	ECJ0EB1H102K	0.001		R813	ERJ2RKF2003	200k	
C805	ECJ0EB1A104K	0.1		R814	ERJ2RKF1203	120k	
C806	ECJ3YB0J106K	10		R818	ERJ2GEJ102	1k	
C807	ECJ0EB1A104K	0.1		R819	ERJ2GEJ103	10k	
C808	ECJ0EB1H102K	0.001					
C809	ECJ0EB1A104K	0.1				(SWITCH)	
C810	ECJ3YF1A106Z	10		SW801	K0H1BA000401	SWITCH	
C811	ECJ3YF1A106Z	10		SW802	K0H1BA000401	SWITCH	

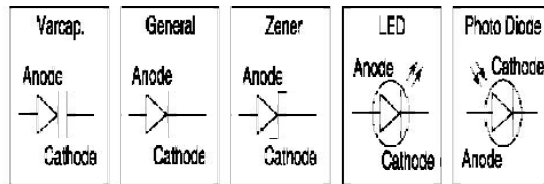
19.6. GREASE

Ref. No.	Part No.	Part Name & Description
EC1	PSZYC10A	GREASE

20. FOR THE SCHEMATIC DIAGRAM

Note:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.



Important safety notice

Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

21. SCHEMATIC DIAGRAM

21.1. WAVEFORM

22. CIRCUIT BOARD

22.1. MAIN BOARD (COMPONENT VIEW)

22.2. MAIN BOARD (BOTTOM VIEW)

22.3. I/O BOARD (COMPONENT VIEW)

22.4. I/O BOARD (BOTTOM VIEW)

22.5. SUB BOARD (COMPONENT VIEW)

22.6. SUB BOARD (BOTTOM VIEW)

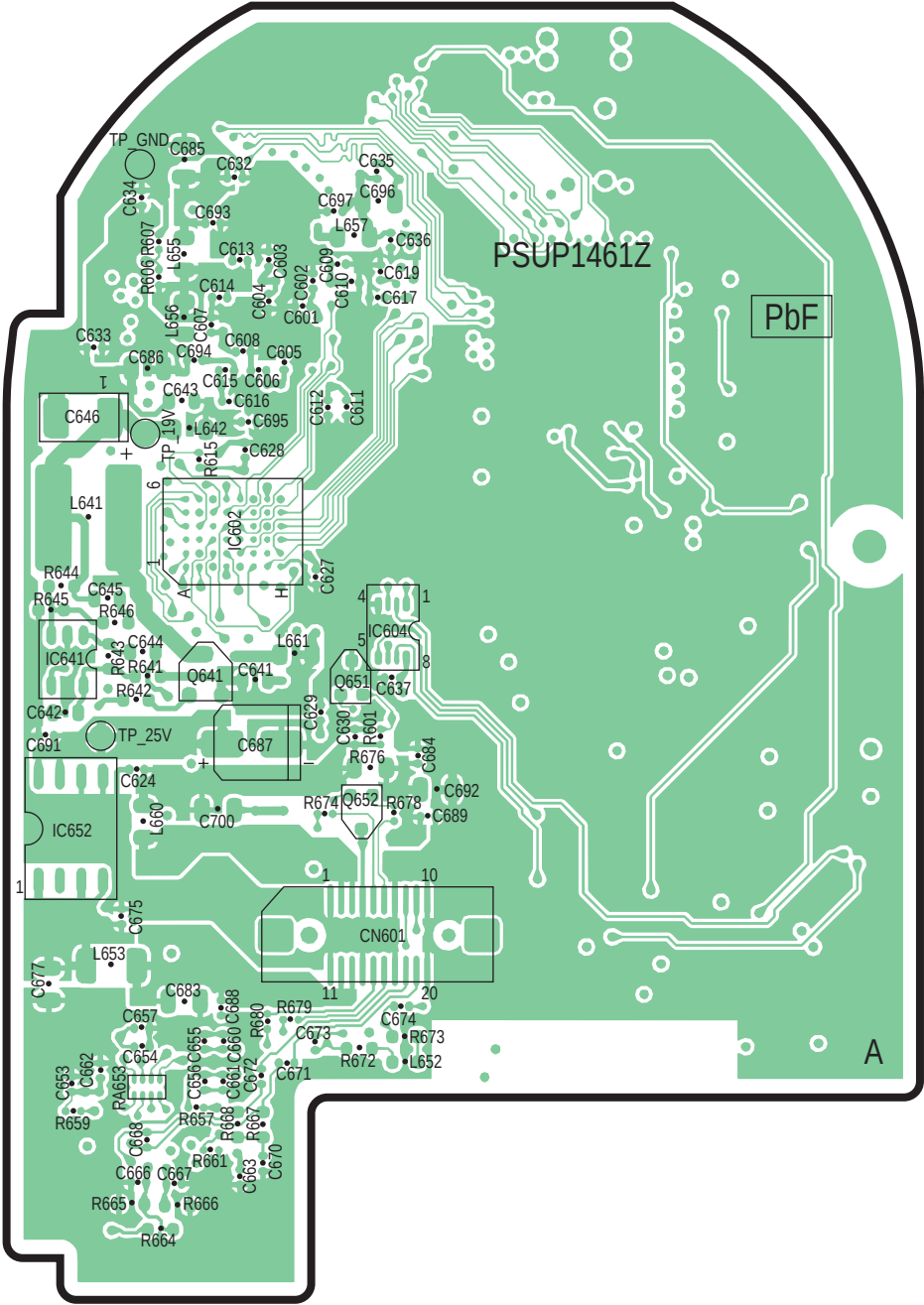
22.7. LENS BOARD (COMPONENT VIEW)

22.8. LENS BOARD (BOTTOM VIEW)

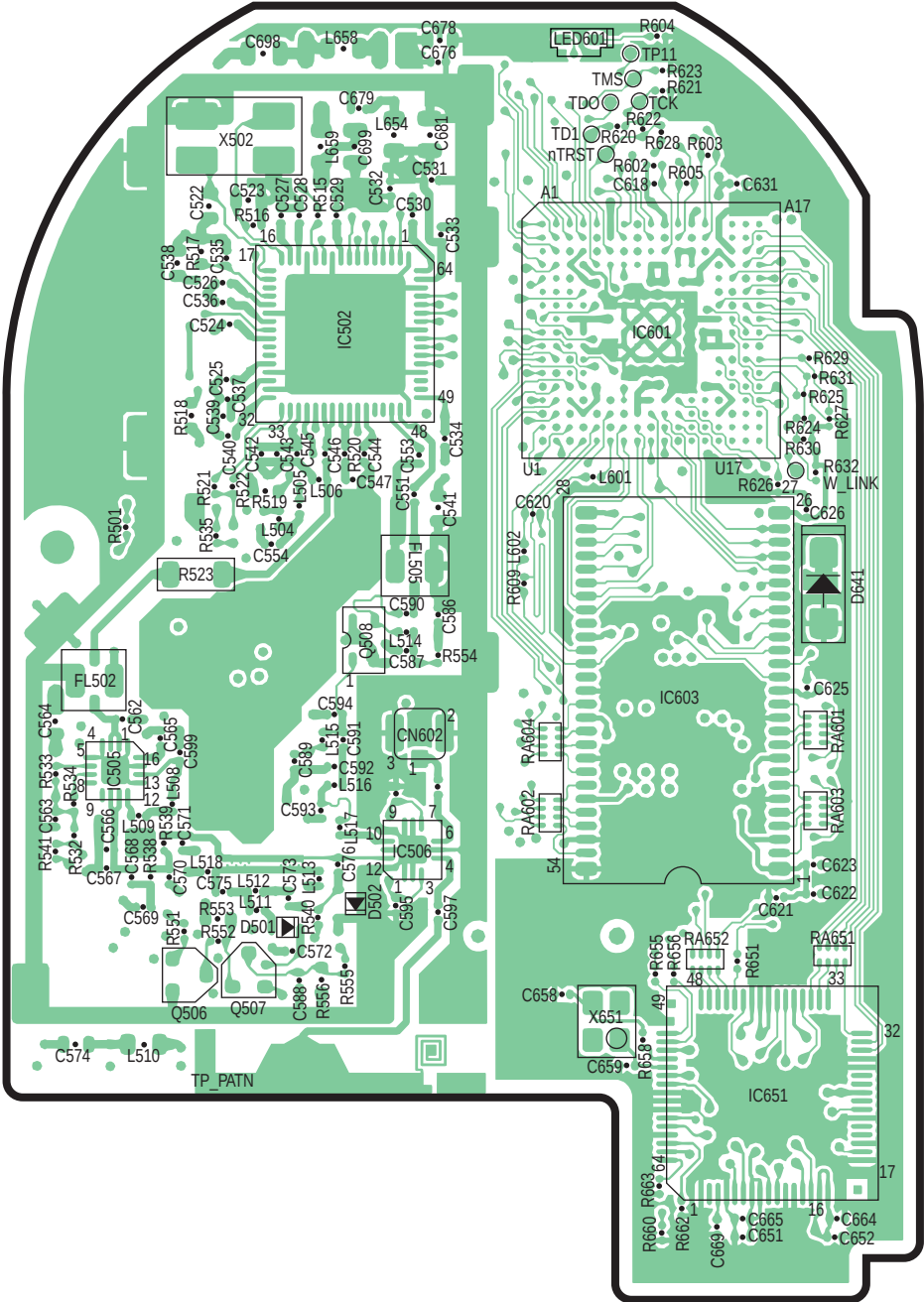
22.9. RF BOARD (COMPONENT VIEW)

22.10. RF BOARD (BOTTOM VIEW)

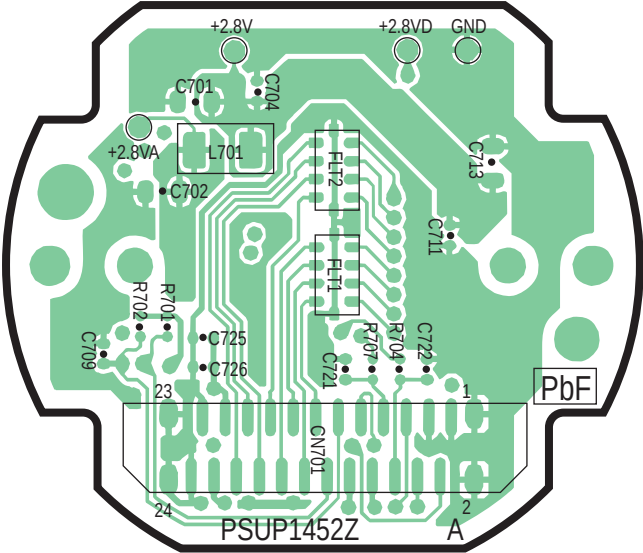
A / BLC30CE/E



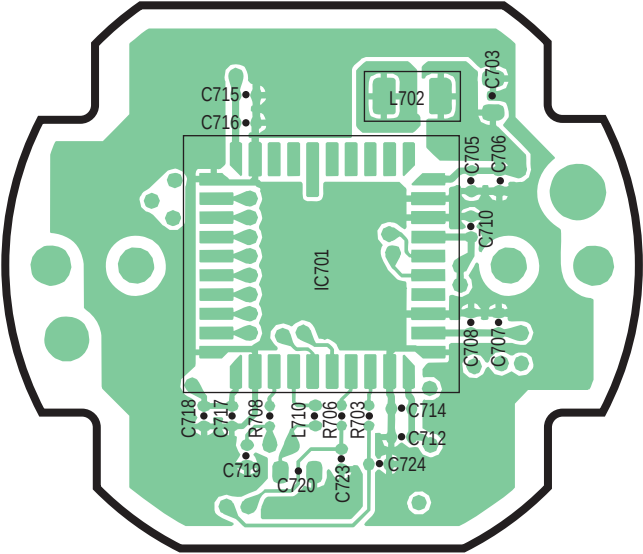
BL-C30 RF BOARD



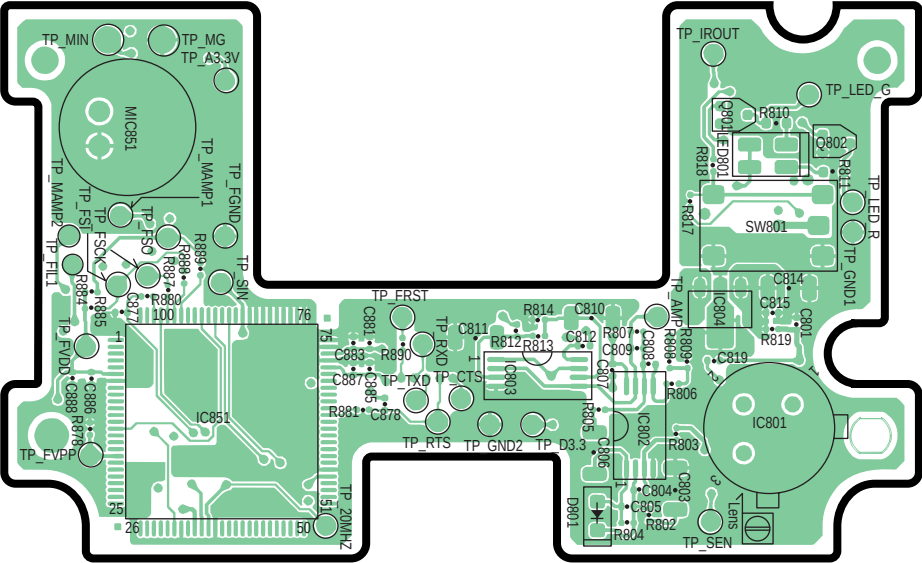
BL-C30 RF BOARD



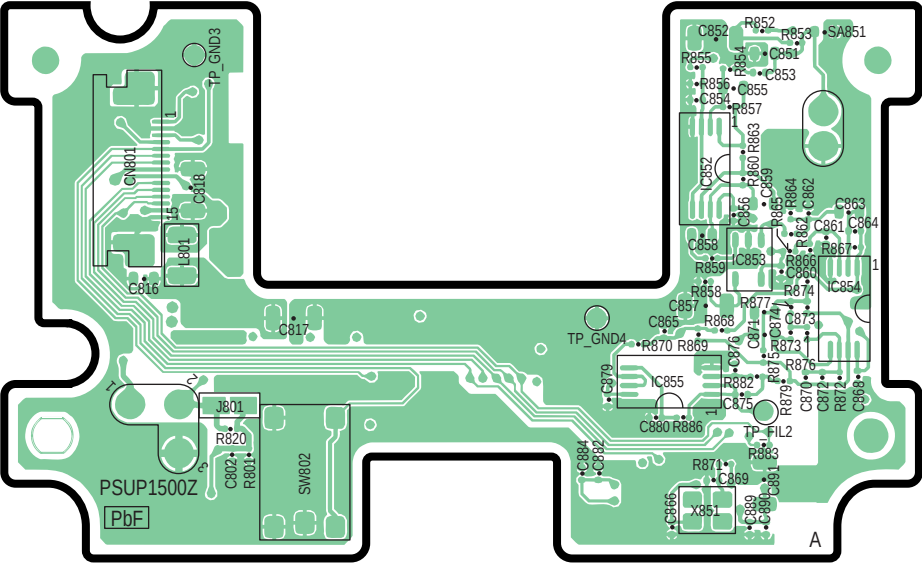
BL-C30 LENS BOARD



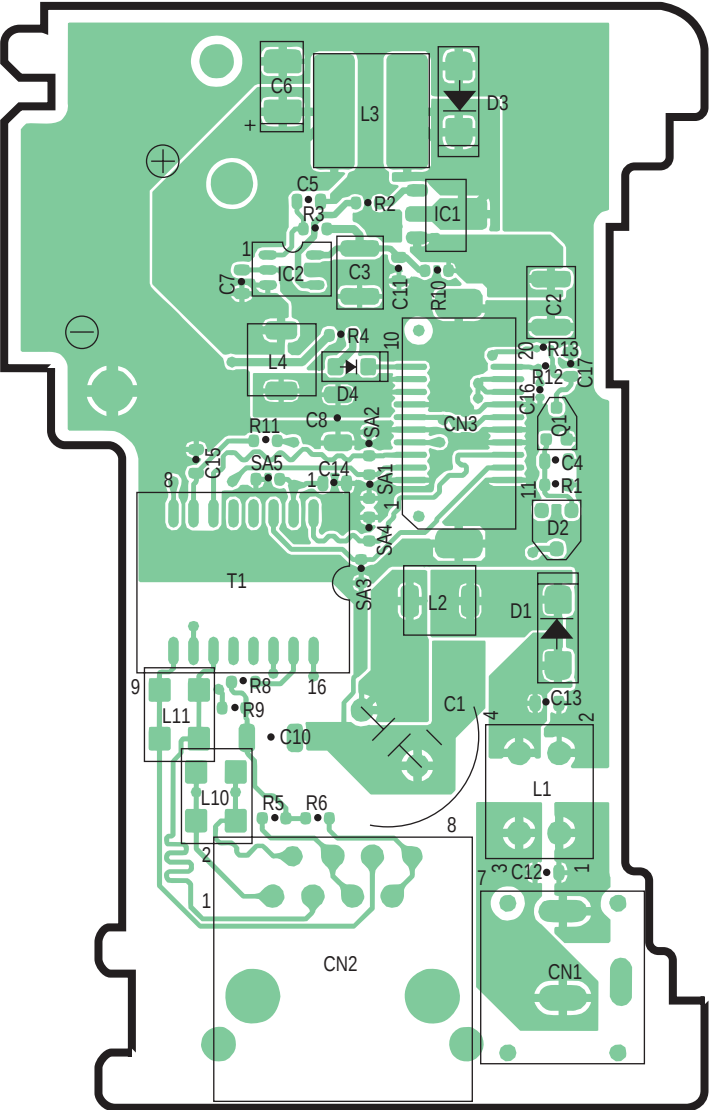
BL-C30 LENS BOARD



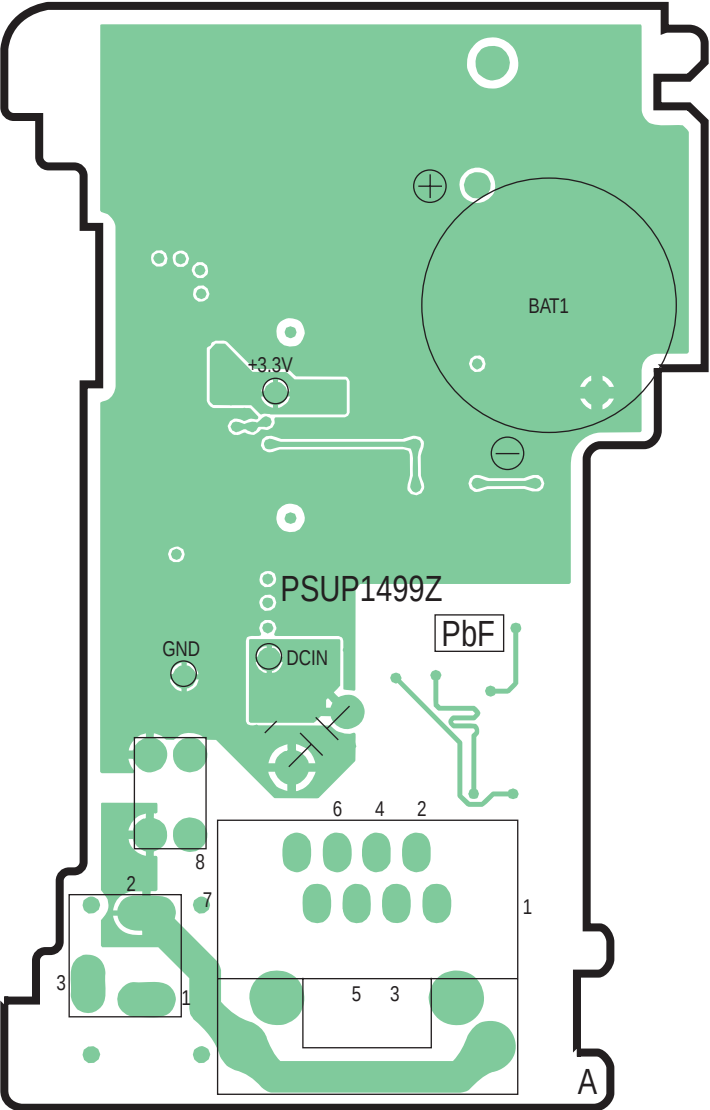
BL-C30 SUB BOARD



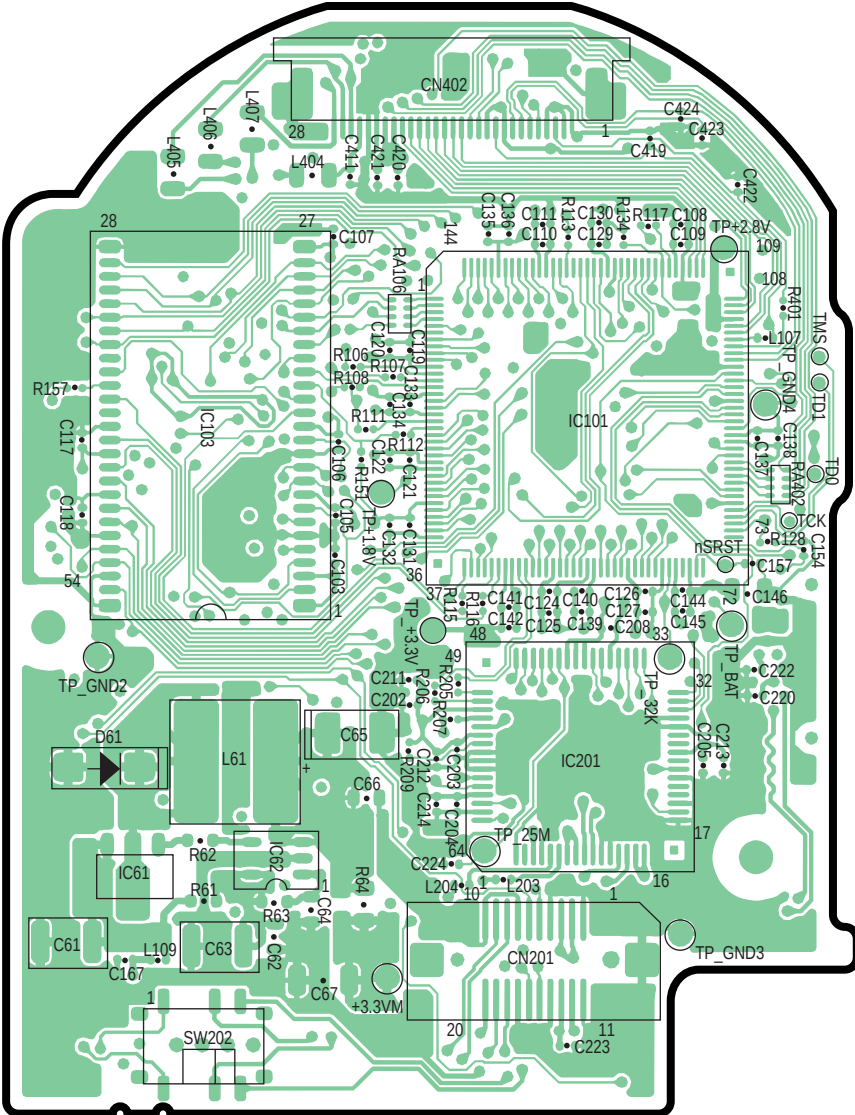
BL-C30 SUB BOARD



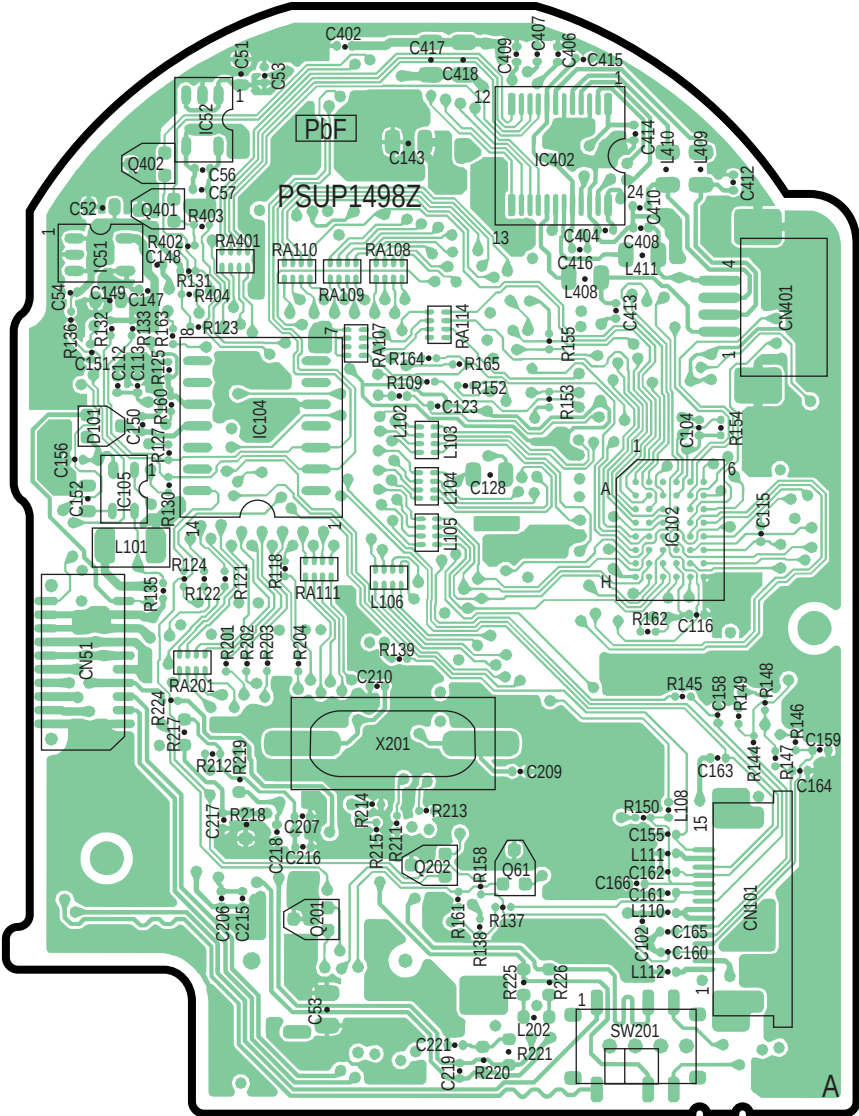
BL-C30 I/O BOARD



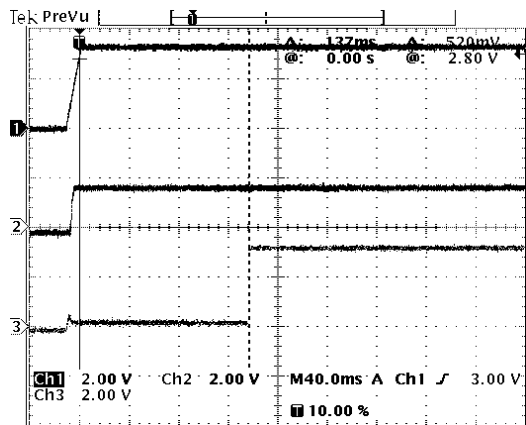
BL-C30 I/O BOARD



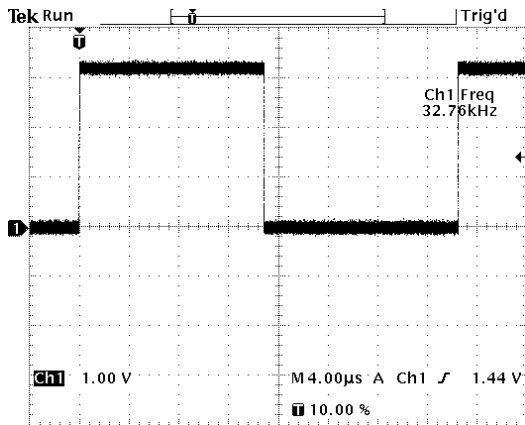
BL-C30 MAIN BOARD



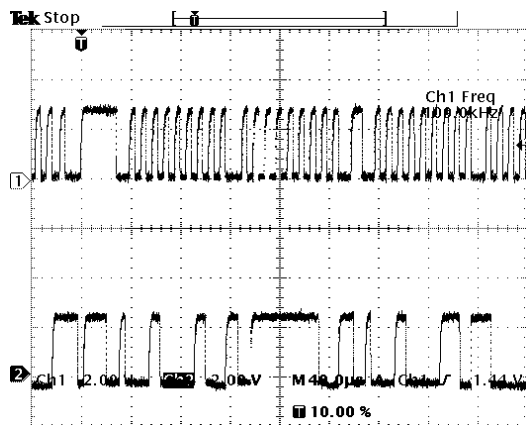
BL-C30 MAIN BOARD



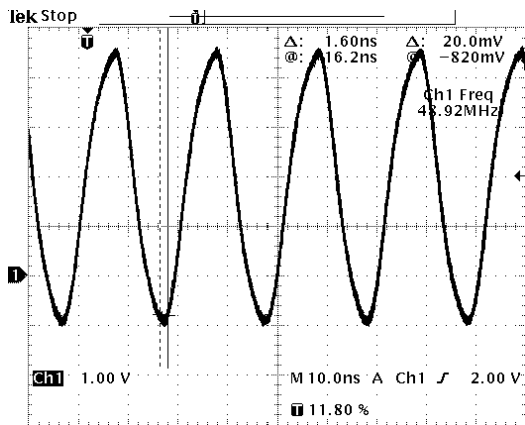
(A1)



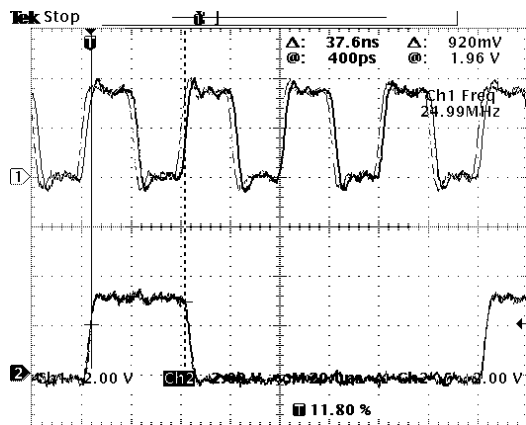
(B)



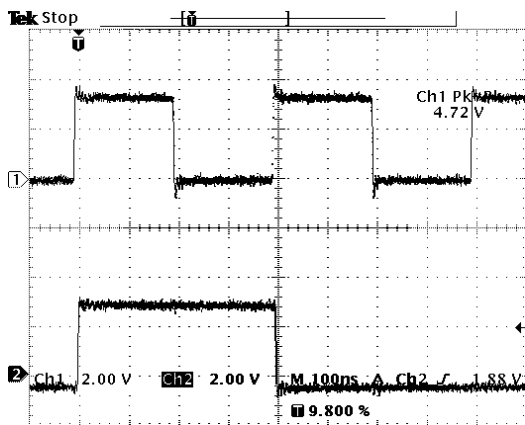
(C1)



(D)

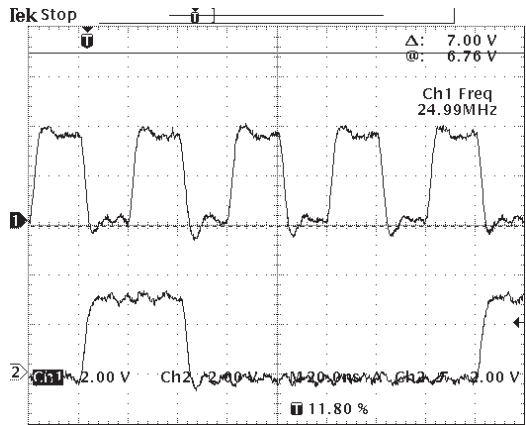


(E1)

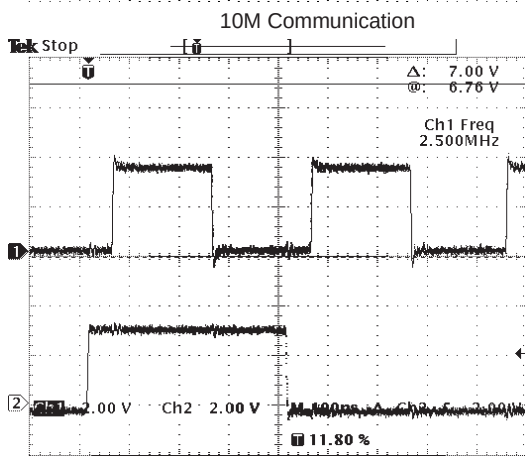


(E2)

100M Communication



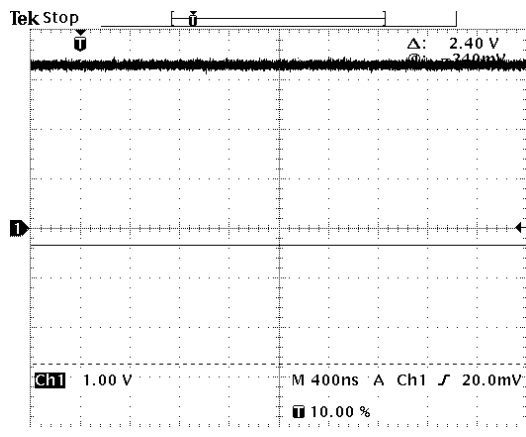
(E3)



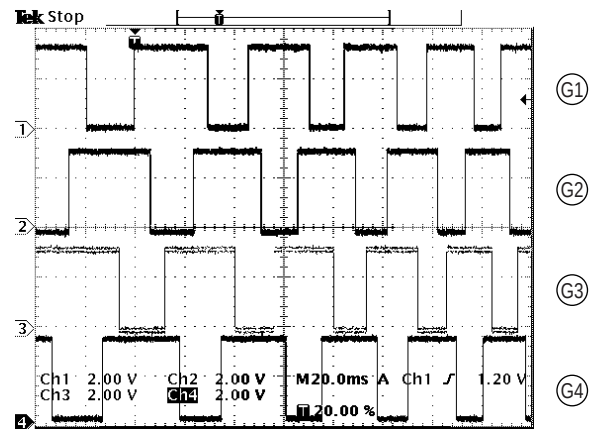
(E4)

100M Communication

10M Communication



(F)

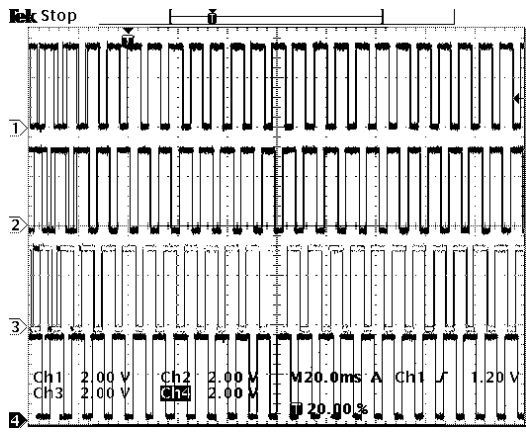


(G1)

(G2)

(G3)

(G4)

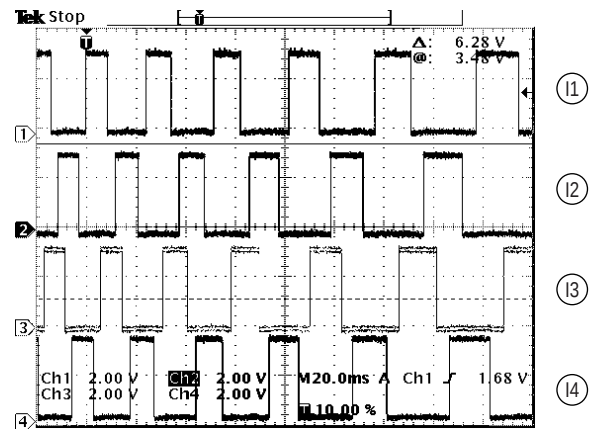


(H1)

(H2)

(H3)

(H4)

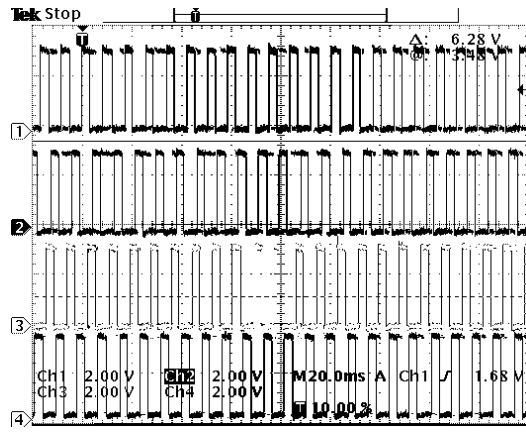


(I1)

(I2)

(I3)

(I4)

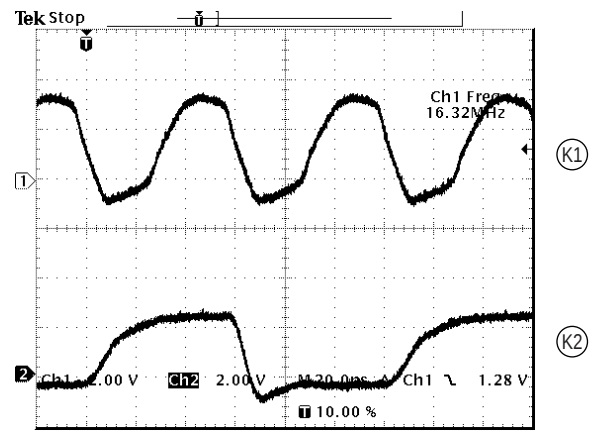


(J1)

(J2)

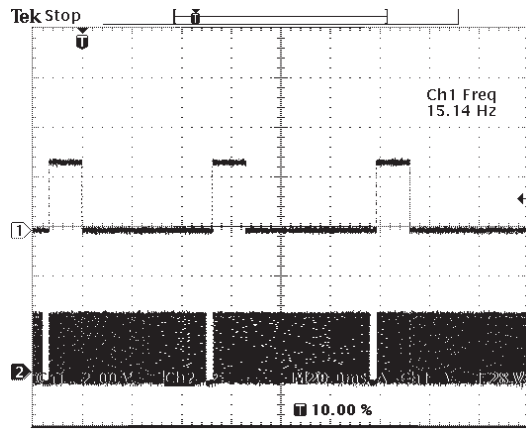
(J3)

(J4)



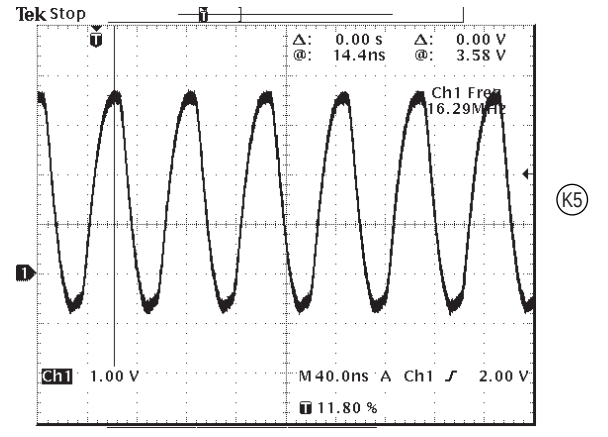
(K1)

(K2)

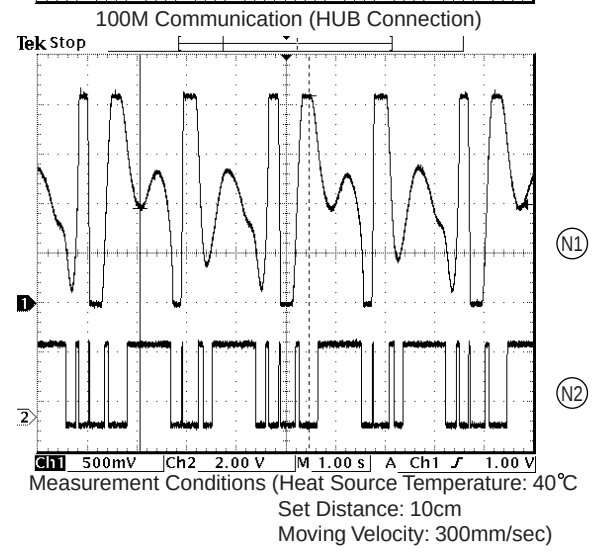
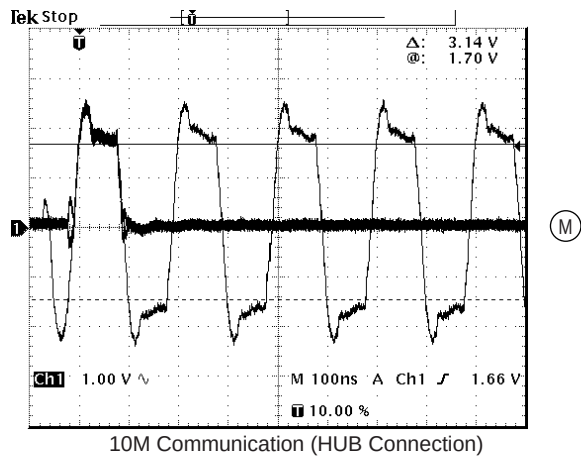
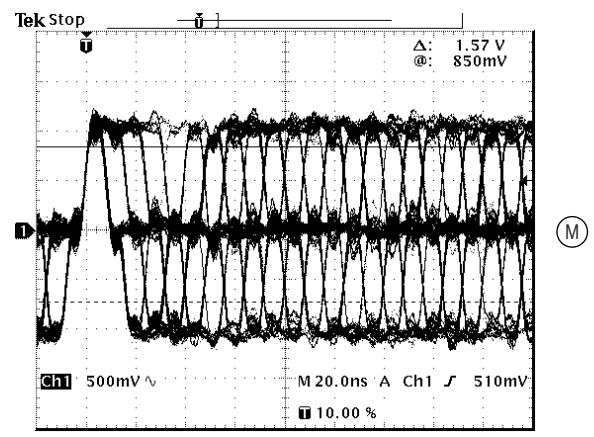
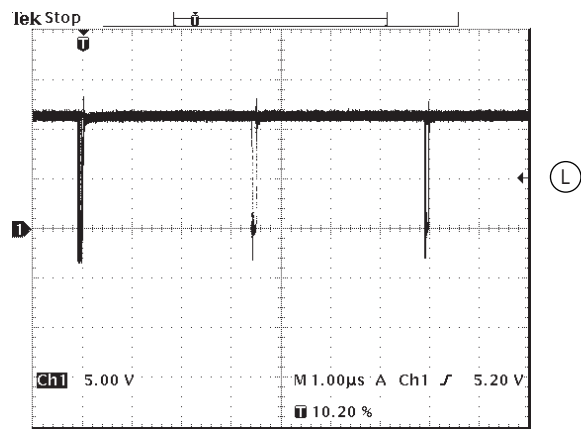


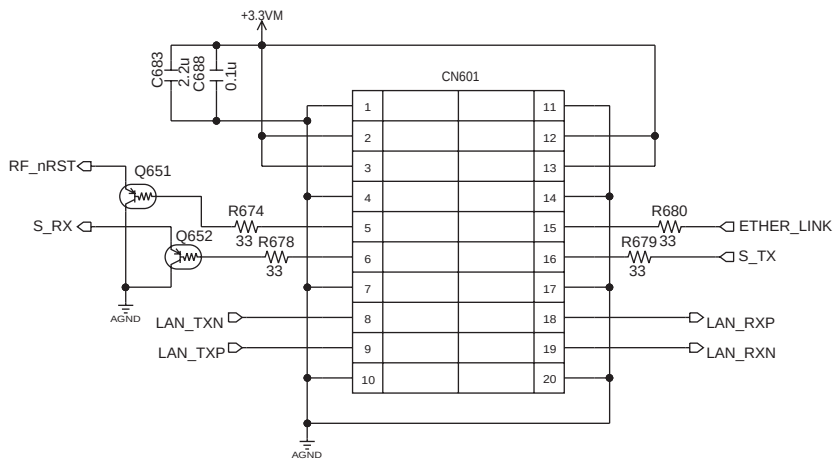
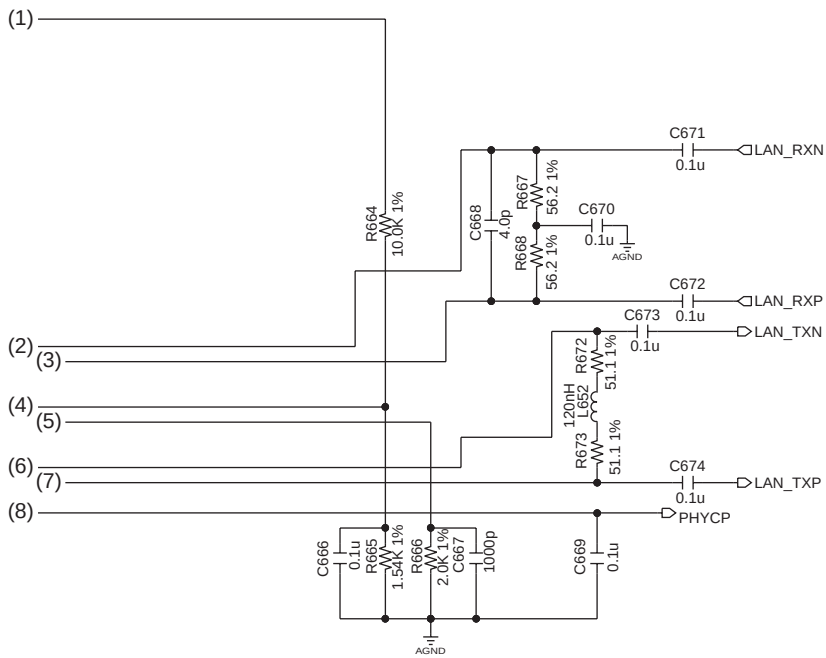
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(K4)

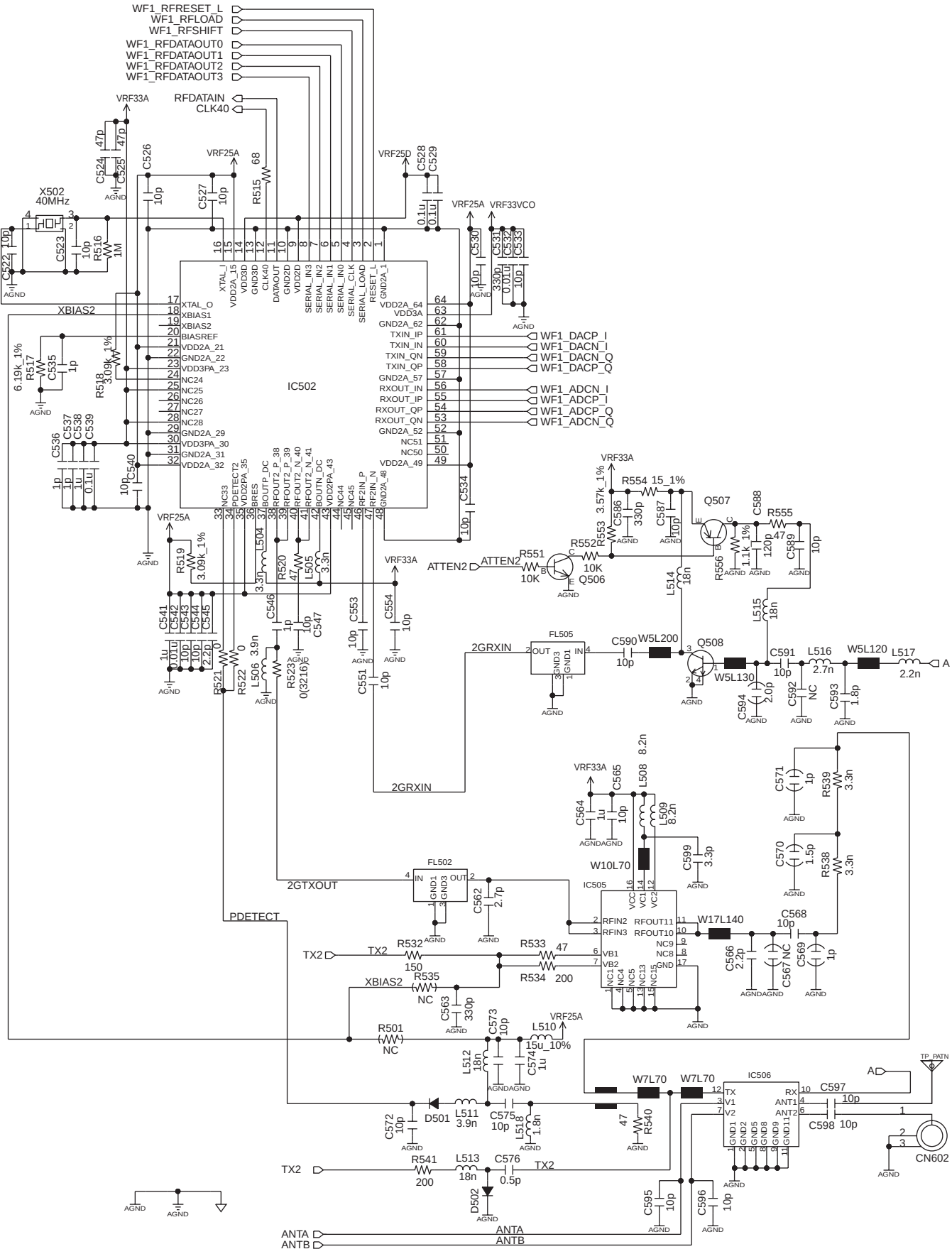


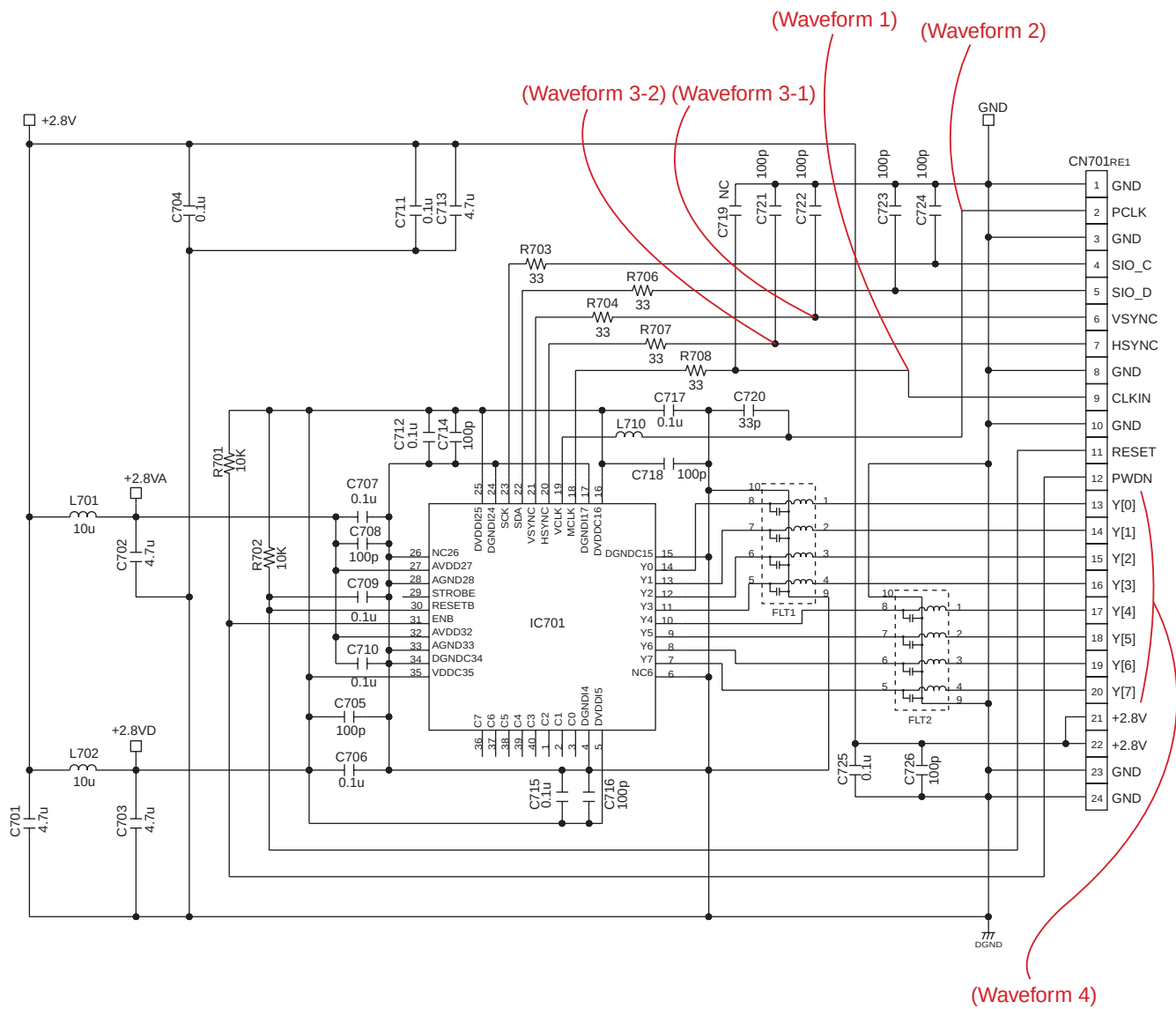
(K5)



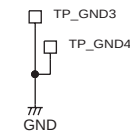
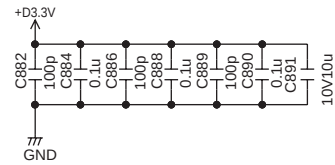
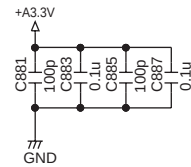
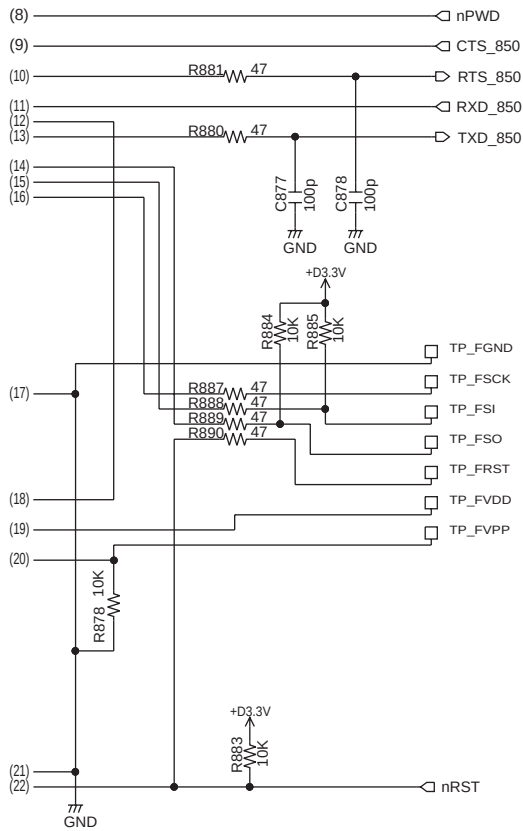
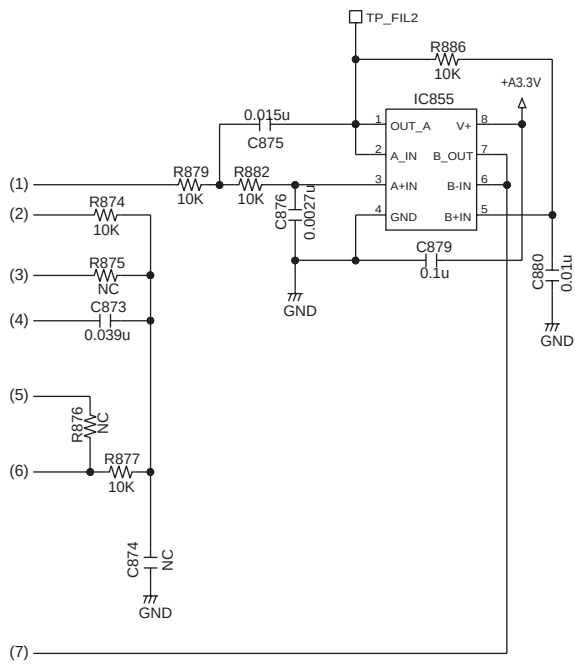




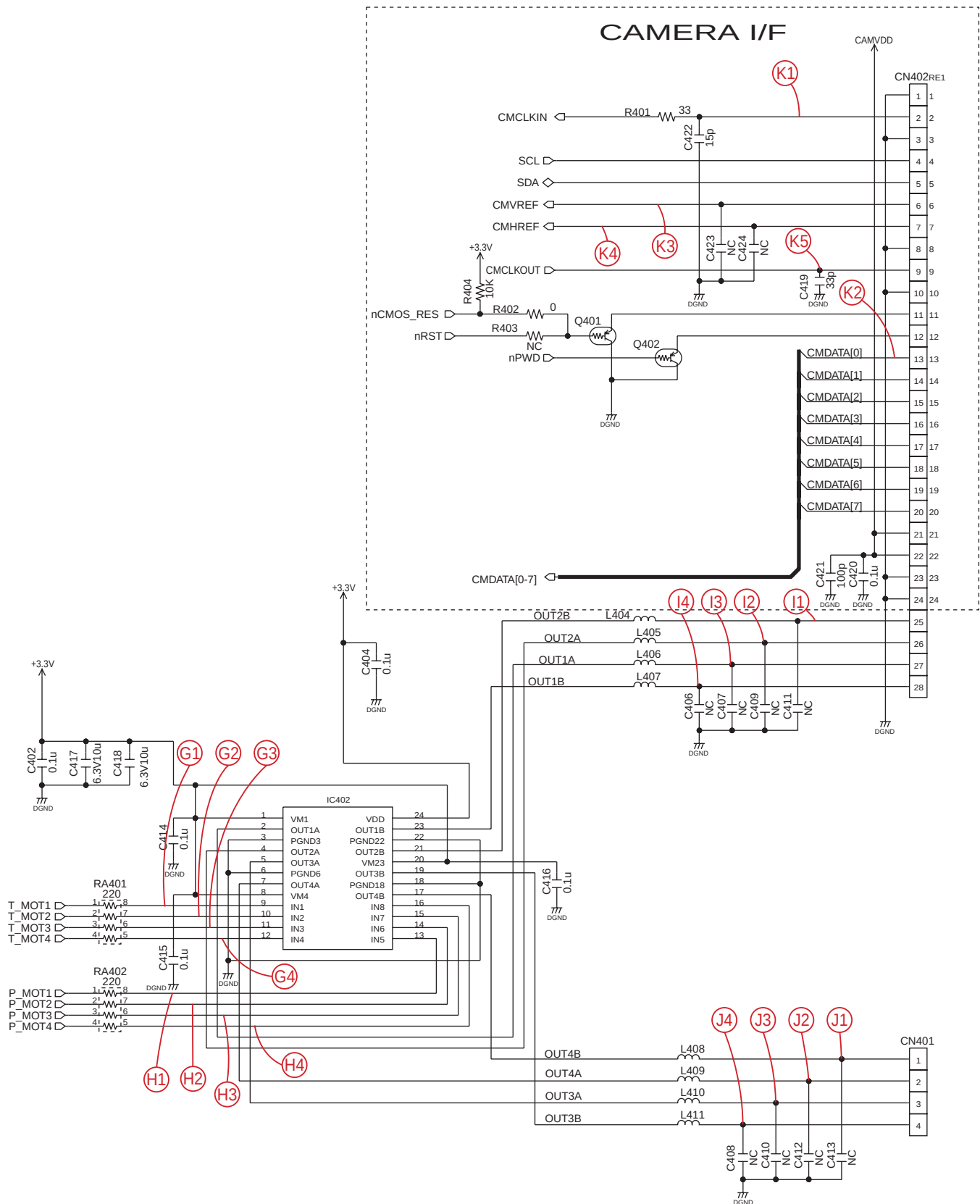


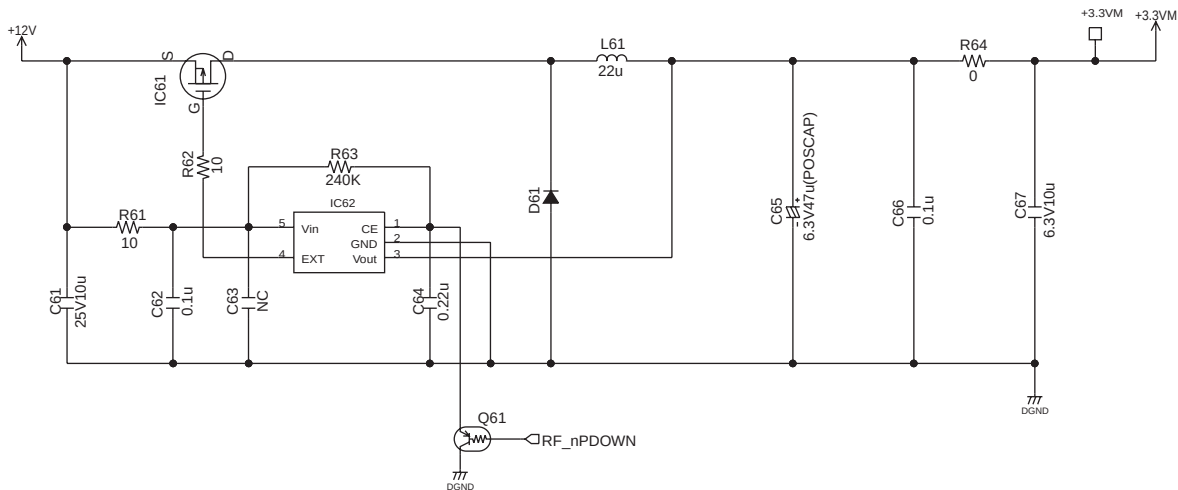


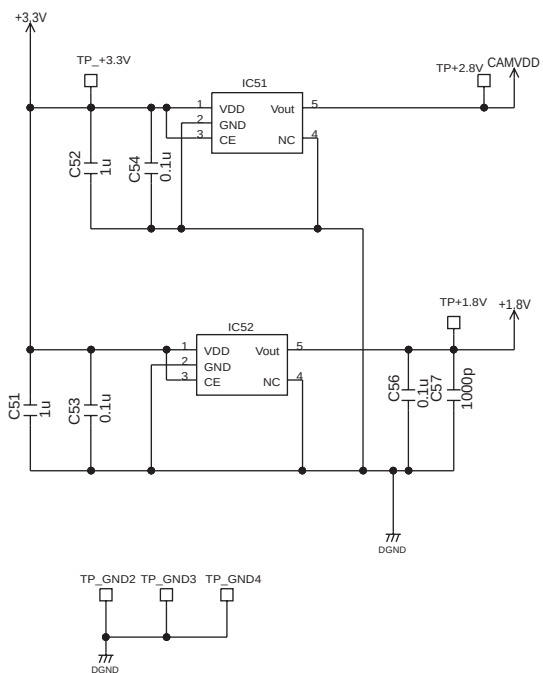
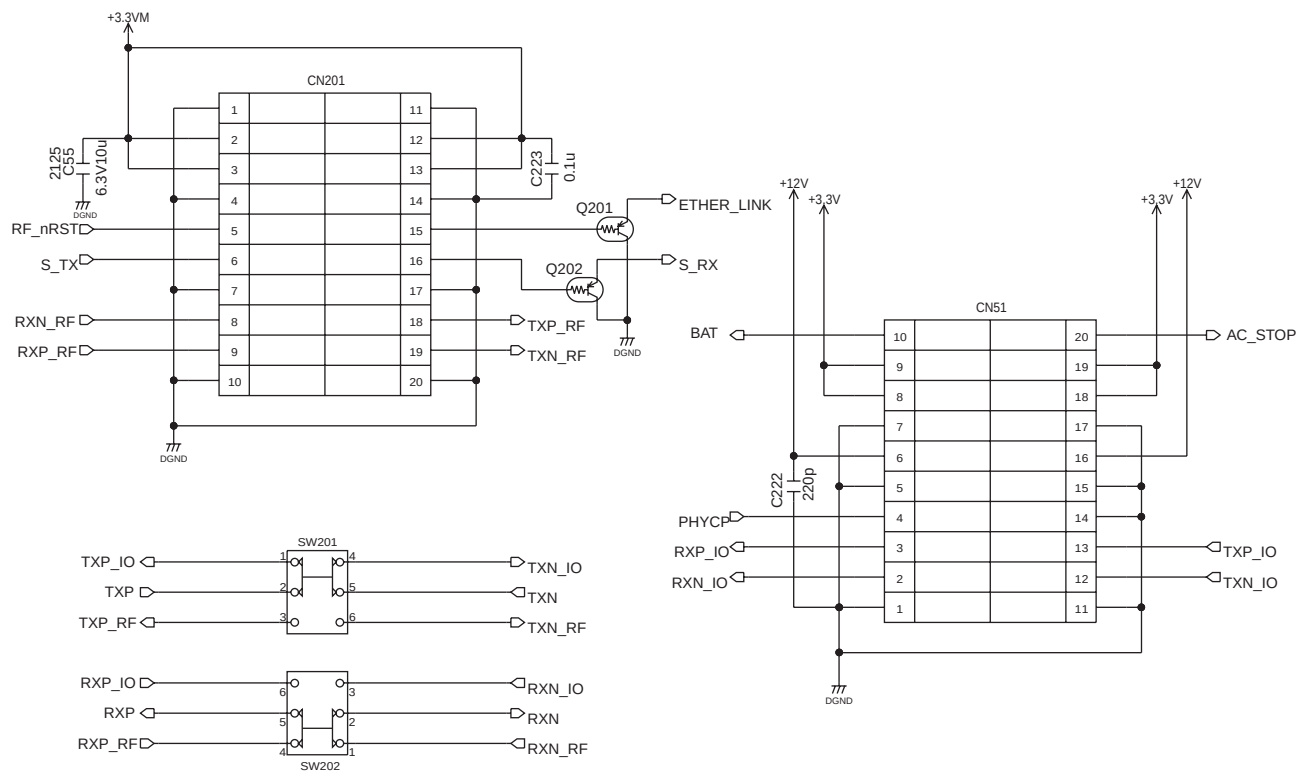




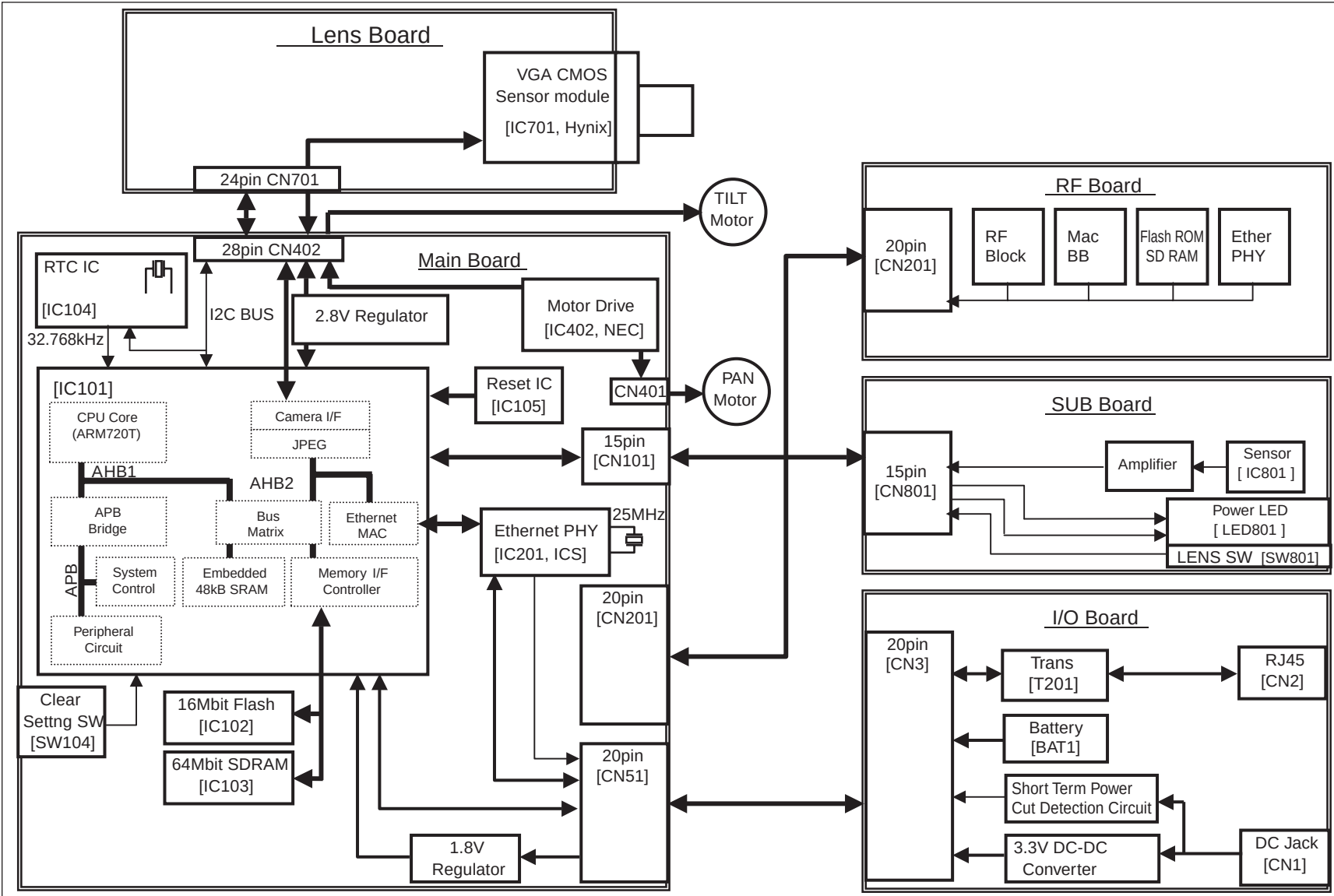




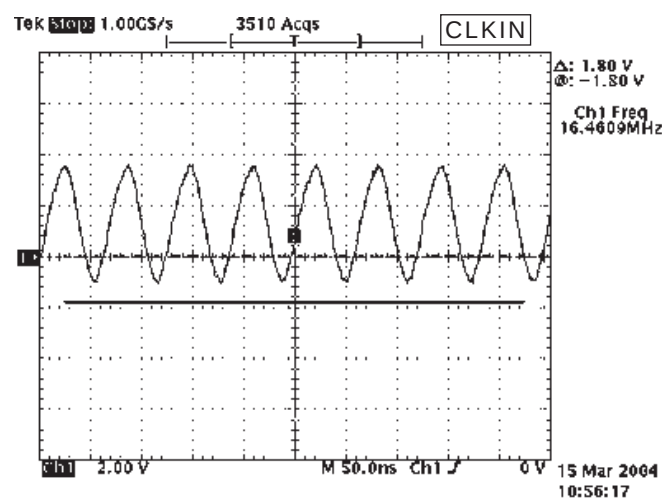




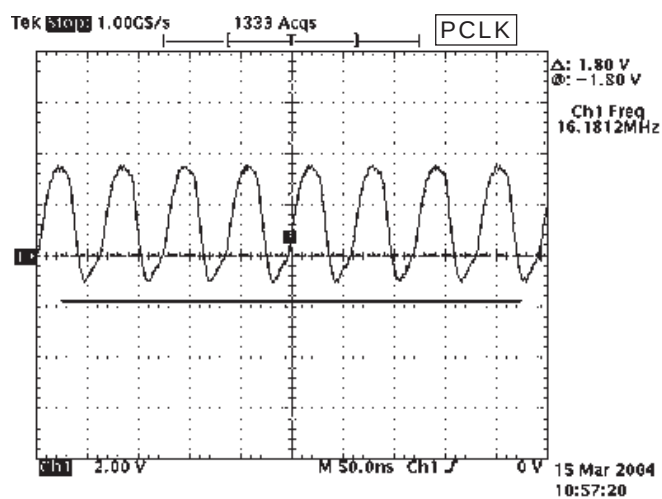




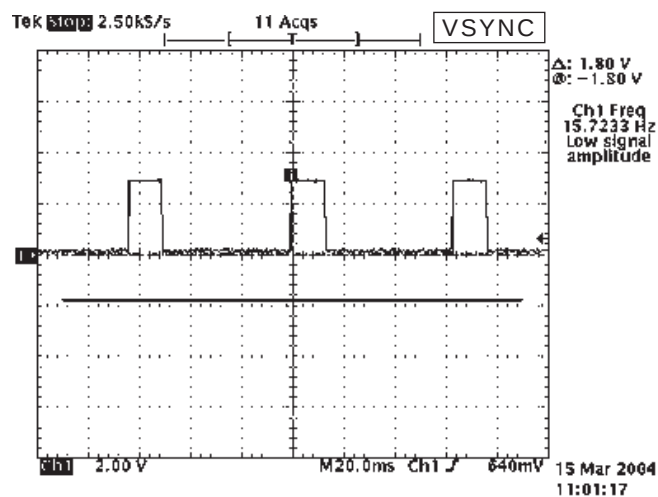
(Waveform 1)



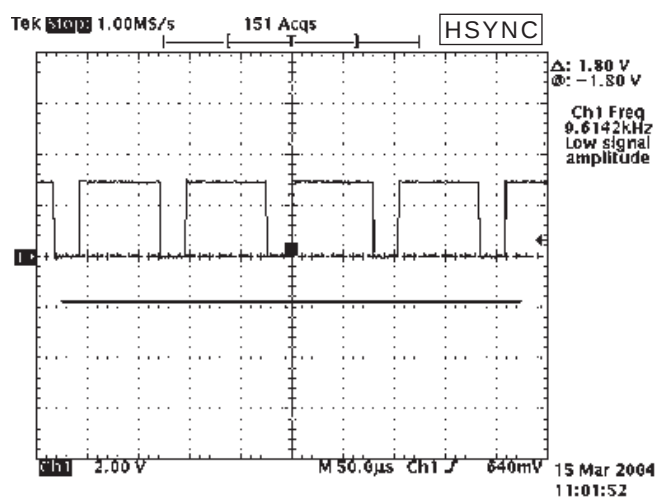
(Waveform 2)



(Waveform 3-1)



(Waveform 3-2)



(Waveform 4)

